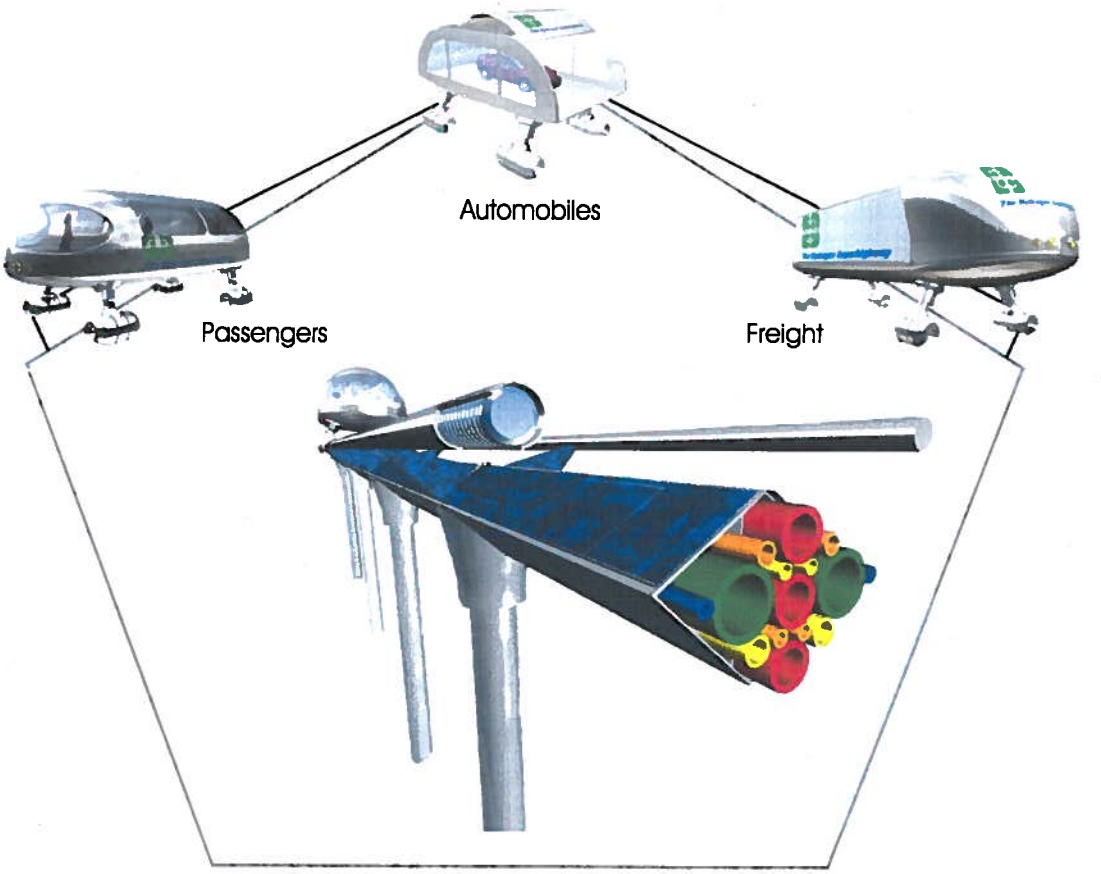
WorldWide
Hydrogen Super Highways

Presentation To The

Citizens of Michigan

in care of

Governor Rick Snyder



- www.HyRail.us -

- www.InterstateTraveler.us -

- www.HydrogenSuperHighway.com -

v.18 - 300 River Place - Suite 5550 - Detroit, MI - 48207 - USA -

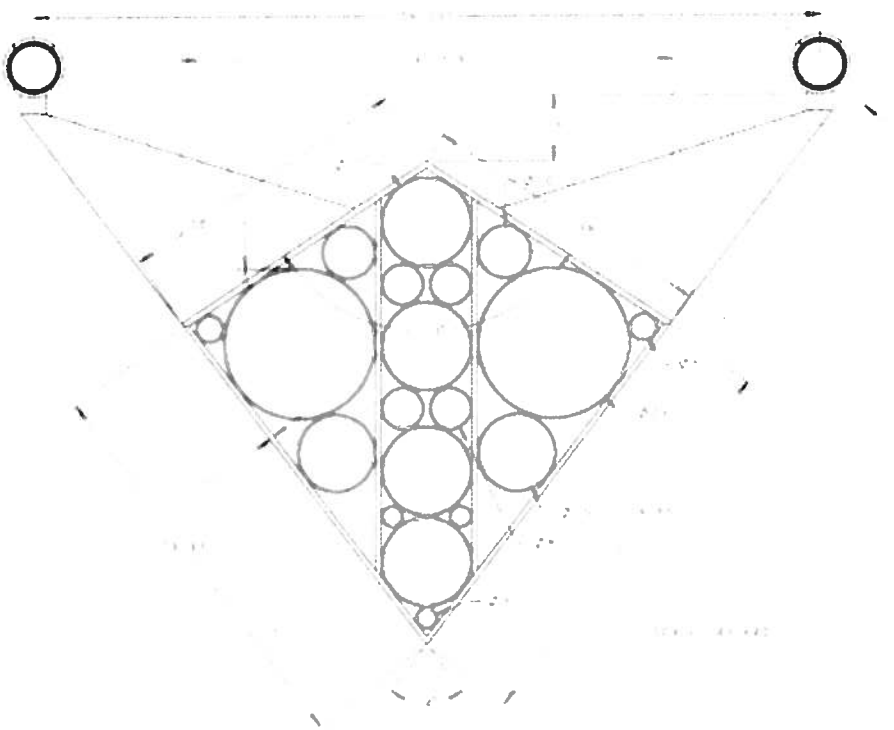
Hydrogen Super Highway

August 28th 2012

Booklet Version - 18.xx

Detroit Aerotropolis Supplemental
Presentation to the Citizens of Michigan
Care Of
Governor Rick Snyder

Authored, Typeset, Printed and Bound
by
Justin Eric Sutton
Made Possible by the Support of
The Interstate Traveler Company, LLC



Interstate Traveler Company

Building the World Wide Hydrogen Super Highway

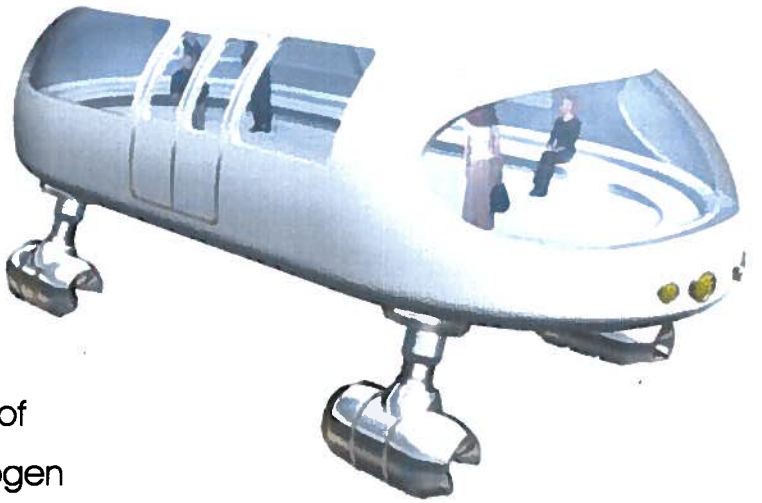
What is the Hydrogen Super Highway?
It is a collection of vital municipal utilities bundled into what we call the Conduit Cluster providing a first-of-its-kind full integration of solar powered hydrogen production and distribution system technology which provides the energy to operate a high speed magnetic levitation (MagLev) on-demand public transit network built along the right of way of the US Interstate Highway Systems, and any other permissible right of way where such a machine would be of benefit. The Hydrogen Super Highway, also known as the HyRail, is accessed by Traveler Stations that are built within the right of way of the Interstate Highway and within the land locked real-estate of the clover leaf interchanges providing maximum ease of access for people traveling on the Interstate Highway.

The Hydrogen Super Highway provides a:

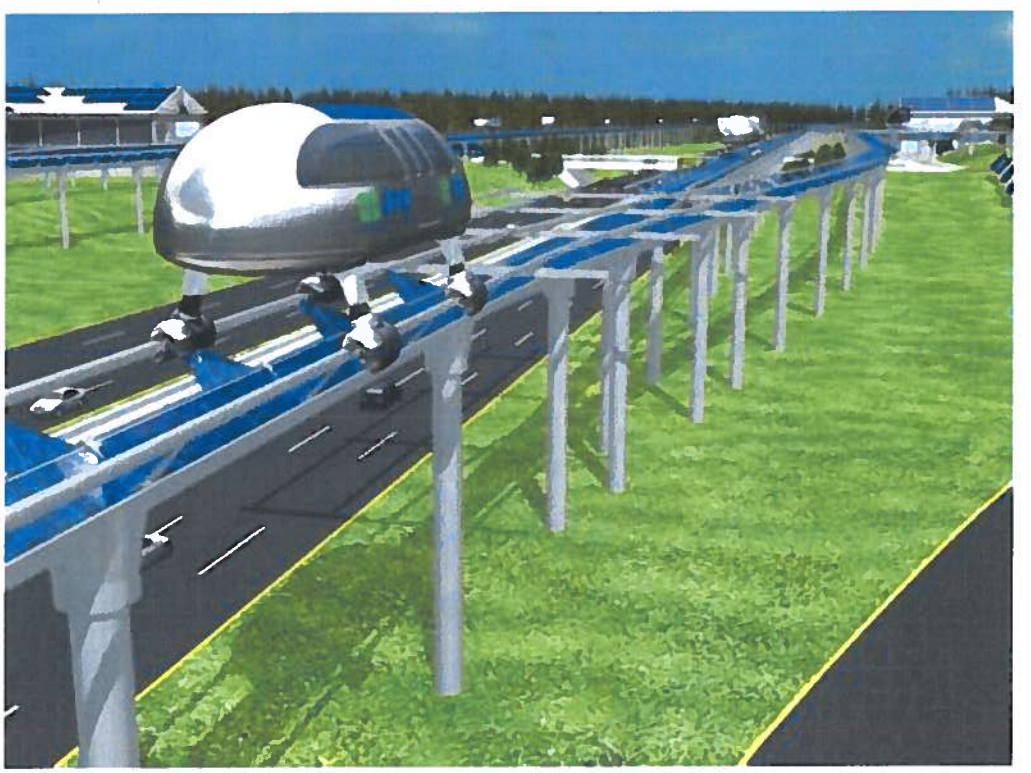
Transportation System
Solar Energy Collection Grid
Intelligent Electrical Distribution
Intelligent Electrical Load Balancing
Hydrogen Production & Distribution
Liquid / Vapor Storage & Distribution
Redundant Fiber Optic Network
Wireless Internet Access
Millions of Tons of Stainless Steel
Many Thousands of Jobs
...and so much more...

The Interstate Traveler

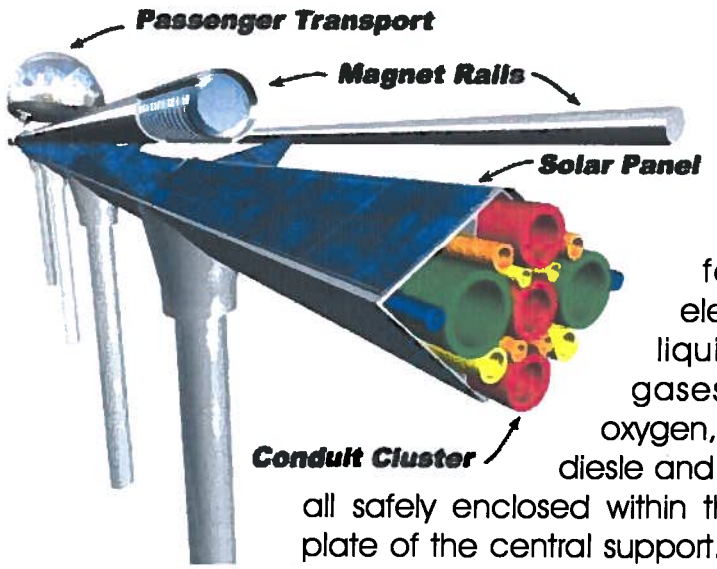
Hydrogen Super Highway - Mag-Lev Public Transit Network



- Fast
- Safe
- Clean
- Quiet
- Quality
- Weather Proof
- Sand / Ice Proof
- Creates Hydrogen
- Creates Clean Water
- Creates & Stores Surplus Power
- Dial "211" for Curb to Curb Transit
- Creates Millions of Good Paying Green Jobs



The HyRail



Fully embedded municipal conduit for water, sewer, electricity, fiber optics, liquids, vapors, and gases like hydrogen, oxygen, natural gas, bio-diesle and other types of fuel, all safely enclosed within the protective steel plate of the central support. The HyRail will be able to deliver fuels of all types to all the gas stations along the Interstate Highway saving time and money while increasing distribution and safety.

Best of all, the system will consume liquid waste and generate pure water from hydrogen.

Under development for nearly 14 years, Unanimously Endorsed by the Michigan Legislature in 2003, formally recognized by the AFL-CIO, the United Steel Workers of America and the Greater Detroit Building and Construction Trades Council. The Interstate Traveler Hydrogen Super Highway is ready to serve the growing needs of our nation and of the many nations around the world where cities have grown faster than their infrastructure.

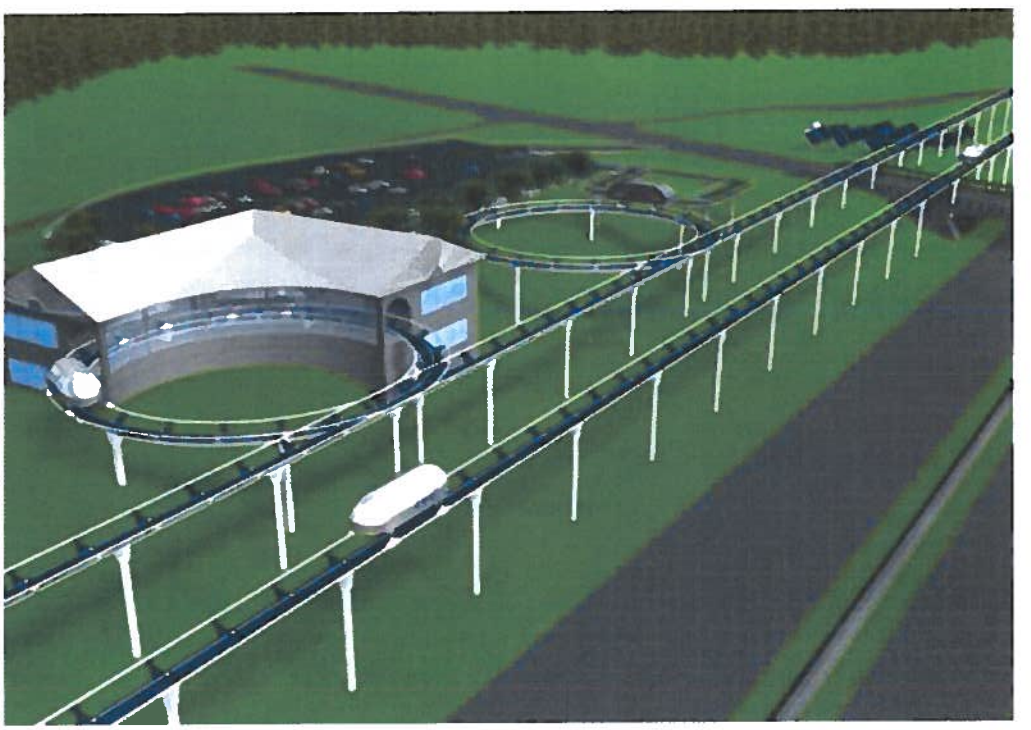
The HyRail bridges the gap of time and distance while creating a national, solar powered, hydrogen production and distribution network. The embedded systems of the hydrogen super highway also create a national waste water management system and water purification system that will serve the public for generations to come.

Ride with Friends

Ride with comfort in the spacious and open cabin area. Enjoy the view out the window as the world slips by at 200 mph. Like every pilots dream, being able to fly at tree-top level and really enjoy the countryside.

No other transportation system in the world can give you such a smooth ride and such a priceless panorama of the world around you.

Fixed schedule and on-demand transports means no waiting.



Fast

Reliable

Spacious

Comfortable

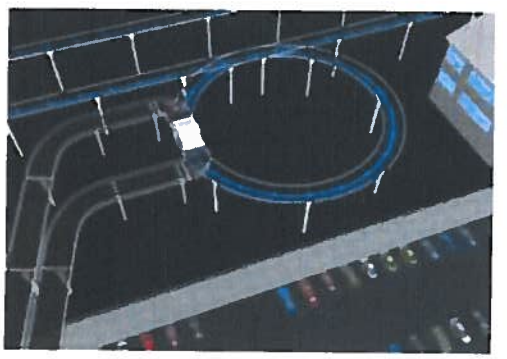
On Demand

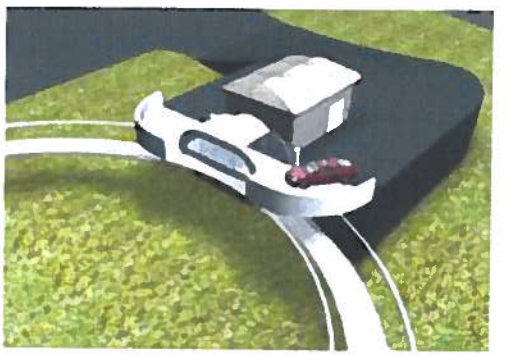
Ride with Family

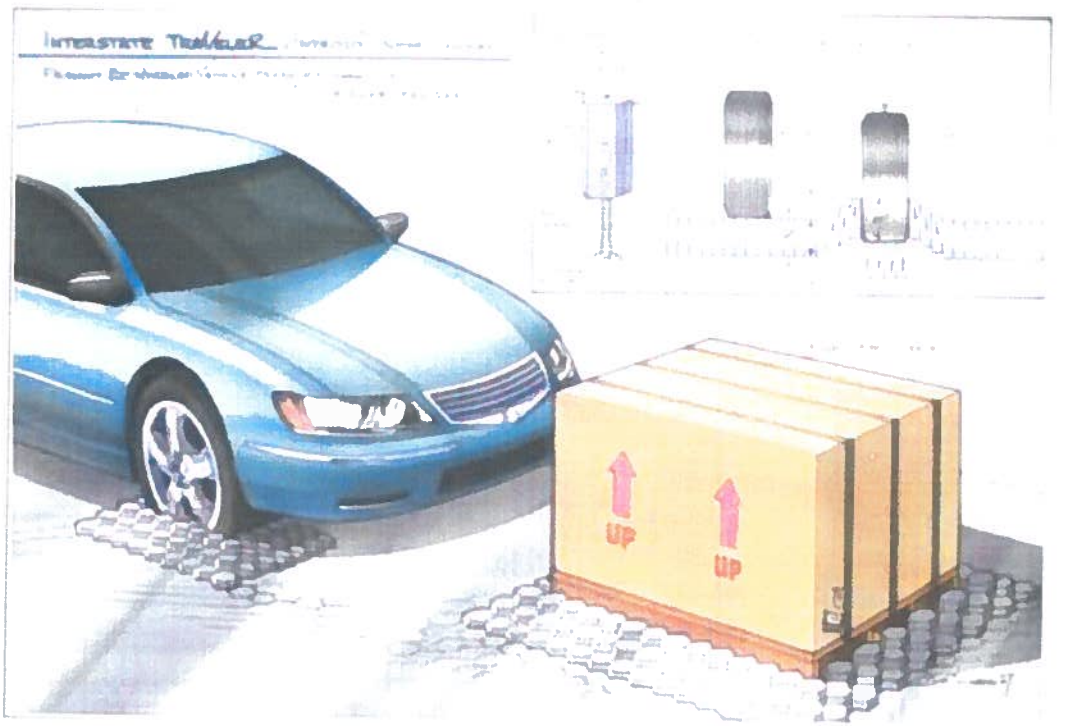
The Car Transport is perfect for Family trips over long distances.

On the HyRail you will be able to travel with your car, truck or SUV at a high rate of speed. You could even load a bunch of motor cycles for a sunset ride out West or load up the snow mobiles for an afternoon ride 200 miles north.

At 200mph on the HyRail, you will be only about an hour away ...







Private

Versatile

Durable

Cars

Trucks

Pallets

Anything

Ride in Luxury

Office, Condominium, Private Parties

Huge Area

Commercial

Residential

Club Car

Limousine

Sports Teams

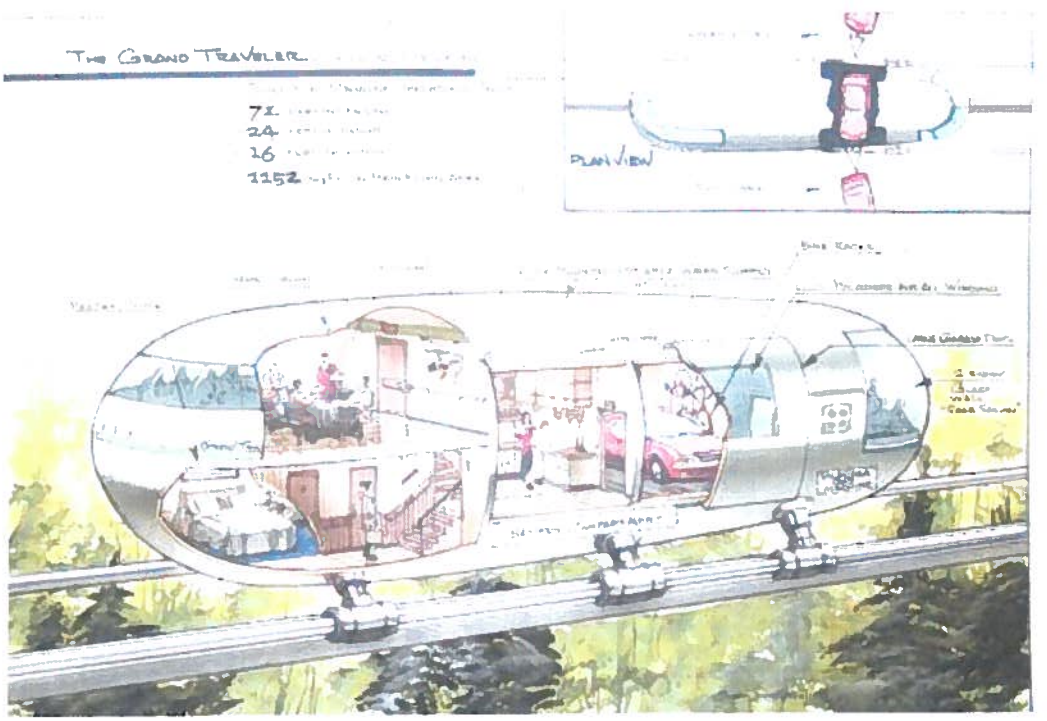
V.I.P.s

Never before could it be possible for such large, spacious, and comfortable transport vehicles be constructed and reliably operated across a national network of high speed , super efficient maglev rail.

In the future, many tens of thousands of Grand Traveler Transports will glide the rails from State to State and from Country to Country, gliding quietly above the tree line.

Boasting a living space of more than 2,000 square feet, the Grand Traveler will be the pallet of automotive designers for years into the future creating all manor of custom spaces.

From Sea to shining Sea, from North to South and from East to West; riding the HyRail will always be the best.

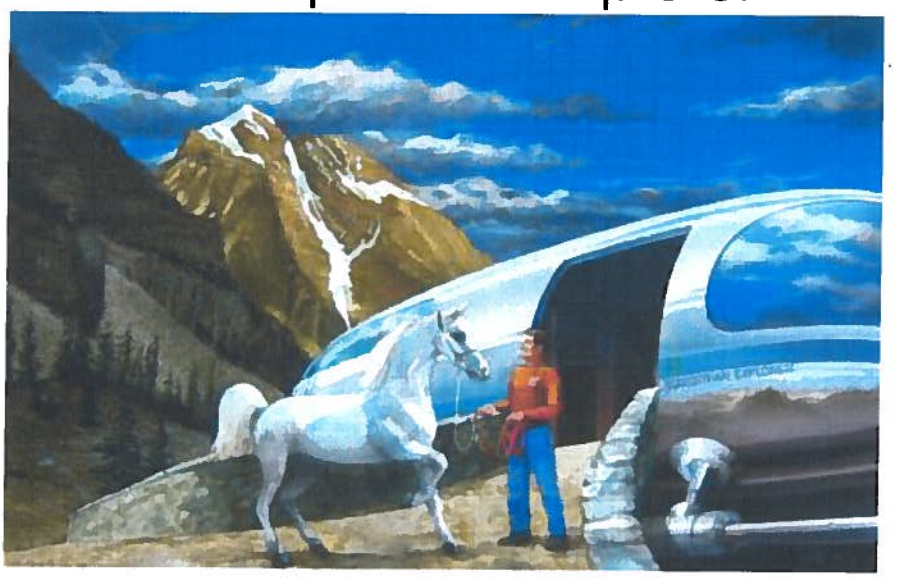


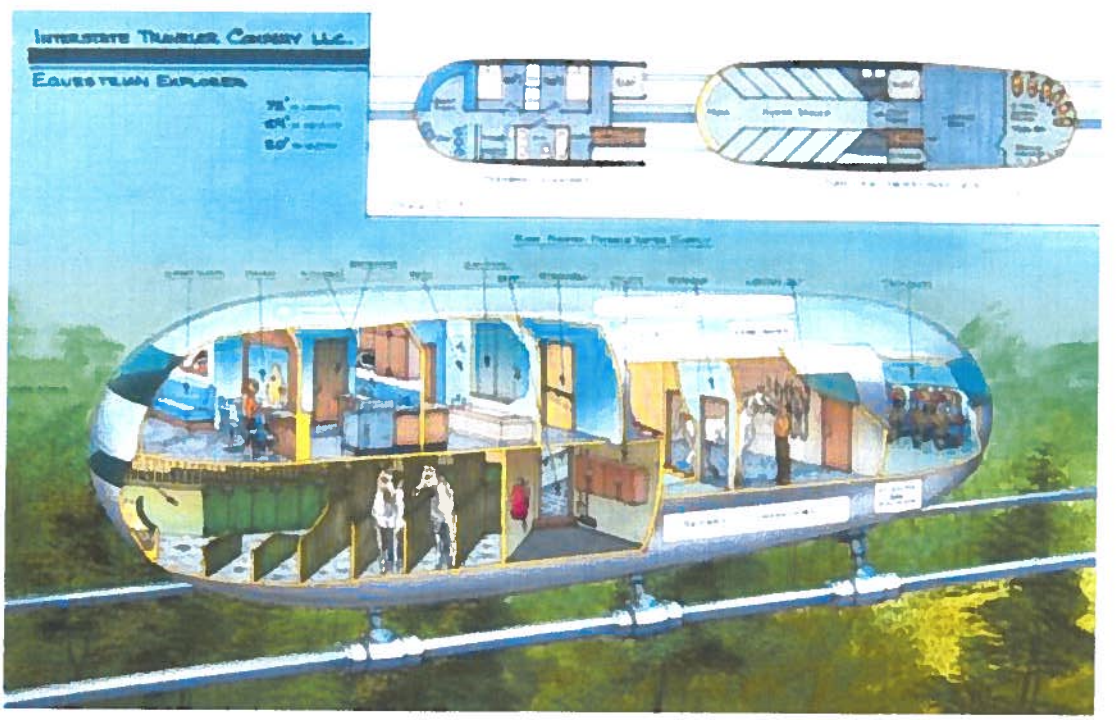
Sports Model

Able to support 2,000 square feet of space...

Of the many diverse and popular sports and vacation activities, our focus groups suggested we illustrate the system used for a wonderful weekend in the mountains where you can bring a large team of horses and handlers and equipment with you. Pick you favorite sport...

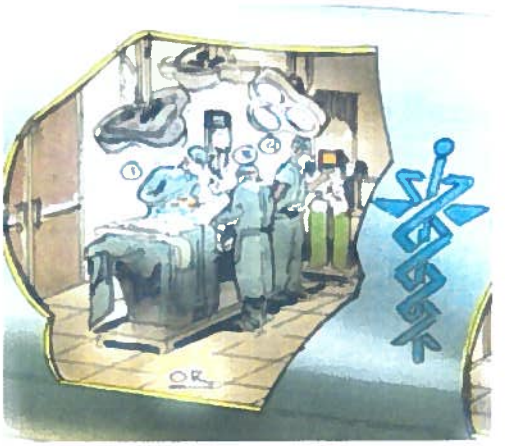
The Equestrian Explorer





- Horses
- Street Bikes
- Dirt Bikes
- Quad Runners
- Snowmobiles
- Skiing
- Snow Boarding
- Bicycling
- Segways
- Hiking
- Sight Seeing
- Forestry
- Ecology

Triage Traveler

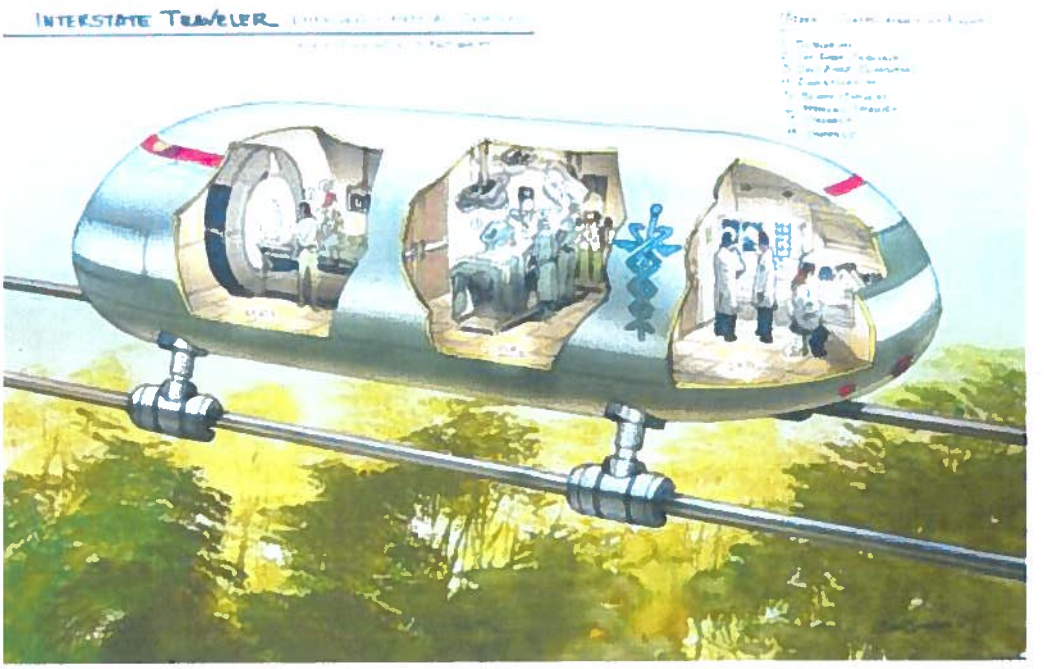


The tragic number of fatalities on American Highways is a harbinger of fate for highways all around the world.

With the Triage Traveler riding on the HyRail, we will be there to help save lives.

According to government statistics, more than 40,000 people per year perish on our Interstate Highways alone. Many of whom could have been saved if they could have gotten to a hospital within that golden hour.

We will be able to assist in more than just accidents on the highway, we will be able to bring expert specialists to any Traveler Station on the network with staff and equipment and on a regular schedule.



Staff of Eight

Imaging

Chemistry

Anesthesiology

Surgery

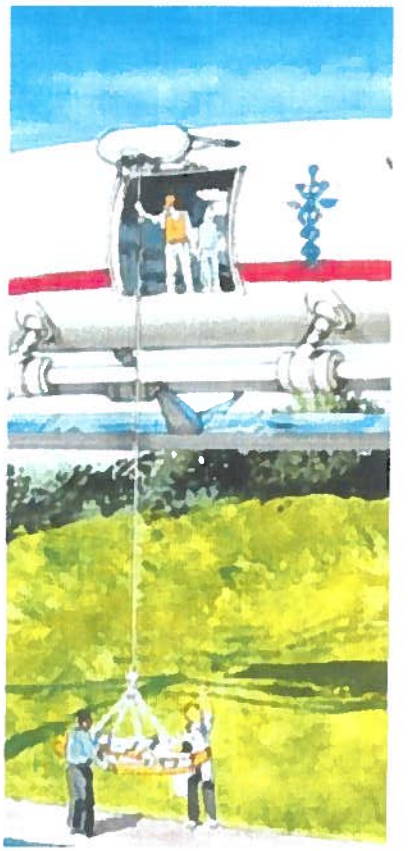
Fast Travel

Weather Proof

Rapid Rescue

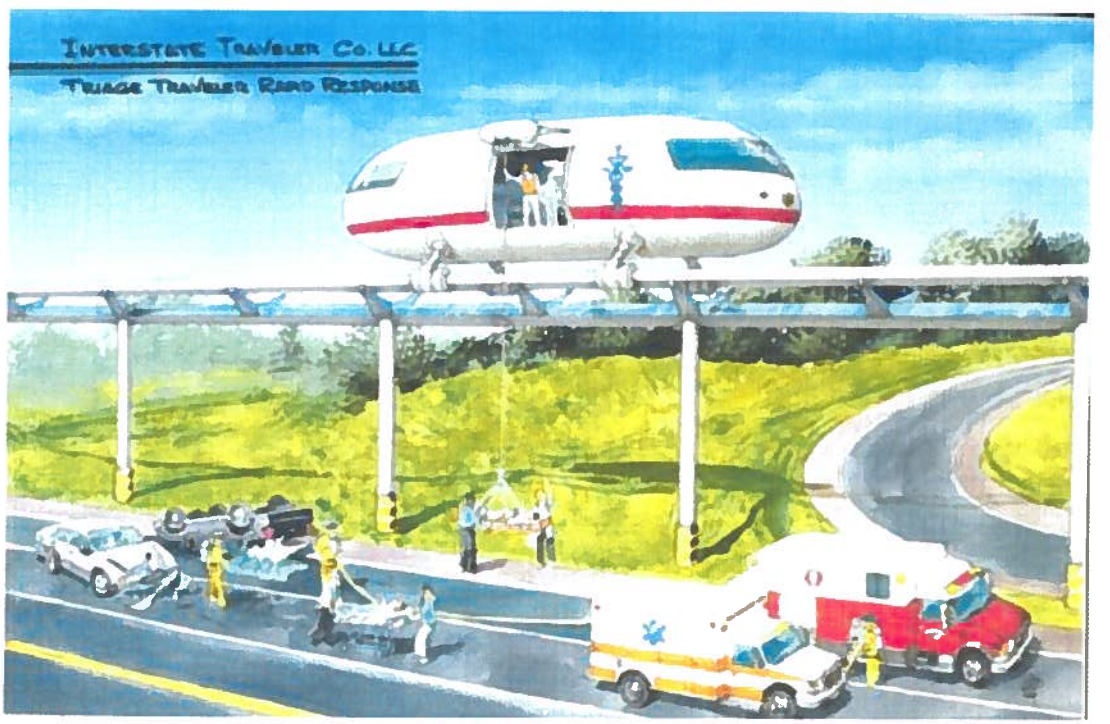
Quickly rescue injured people

We thank God for the people who dedicate their lives to become paramedics, doctors, fireman and policeman. These brilliant, brave and kind hearted people are who we count on save us when we are in harms way.



Dedicated to those who answer your call for help, the Interstate Traveler Company will dedicate free access and operation to Paramedical Units like the Traige Traveler.

Many car accidents result in a large number of wounded and often outnumber the first responders 2 and 3 to one. The Triage Traveler will bring a staff of eight medical professional to the scene of a car accident on the highway at very high speed to lend much needed support and provide rapid delivery of the critically injured along the highway to the nearest hospital or Traveler Station to transfer to a waiting ambulance.



Triage

Trauma

Mass Casualty

Haz-mat

Disaster Recovery

Highspeed Hospital

The modern world is now the home of more than 6 billion people, as in 6,000,000,000, and we are all connected by road ways that enable commerce to flourish, but the roadways are not completely safe.

Here in America we have a mortality rate of more than 40,000 people a year on our Interstate Highway System alone, with many more on the surface streets.

Just like the Triage Traveler, we can bring the HyRail Hospital to places of need *fast,* yet with the added ability to perform complex medical procedures and transport groups of injured people to long term care facilities.

When you are in need, the Highspeed Hospital will be there fast...

Disaster Relief - Mass Casualty Support - Complex Procedures

6 Bed Ward

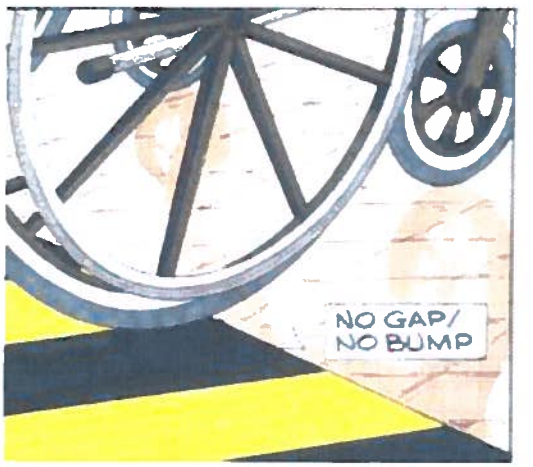
Staff of !2

Onboard Ambulance

Mass Casualty Response

General Practice

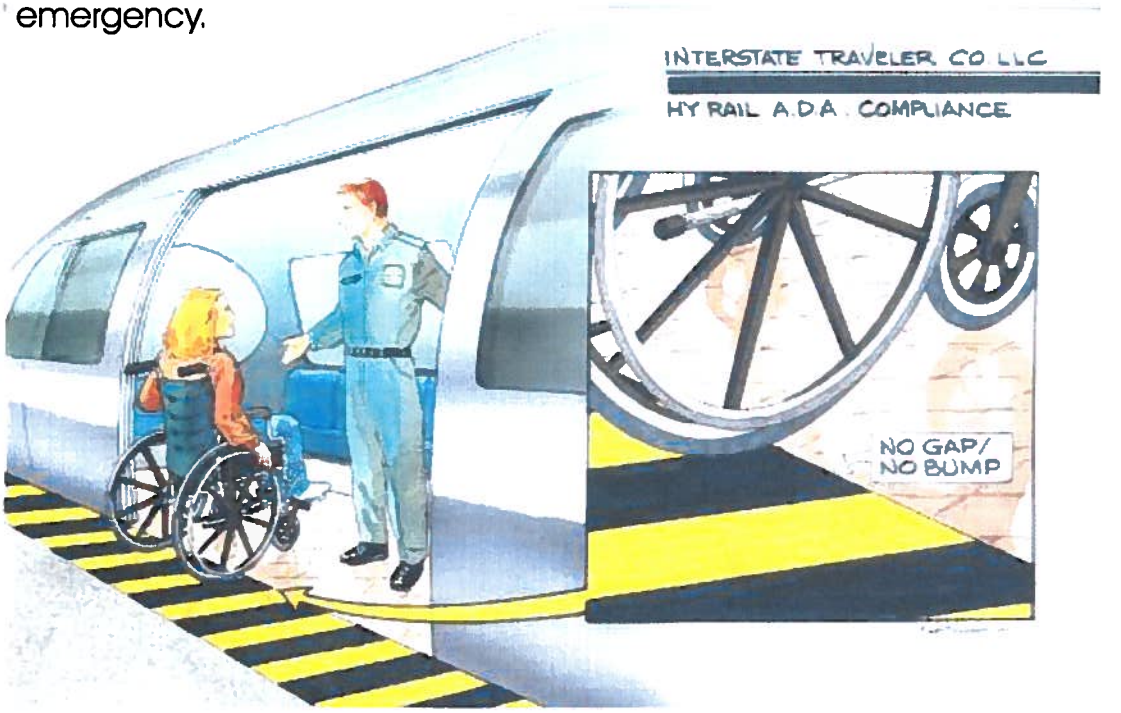
Wide Doors - Open Spaces



Some of the greatest benefits of the Hydrogen Super Highway are the enormously wide entry doors with huge open spaces and a zero-gap threshold that makes egress with wheel chairs, canes, crutches, walkers, baby strollers and even high healed shoes practically seamless.

Since the creation of the Americans with Disabilities Act public infrastructure was renewed for the betterment of all people, with or without the need for ramp of hand rail. We are proud of our ability to exceed the current ADA requirements making sure everyone has equal access.

On the HyRail, a Traveler will always be at ease and relax in confidence that a Concierge is close by to aid and assist you if you need directions, help with your bags, or in case of a medical emergency.



ADA

Compliant

Secure

Reliable

Comfortable

Community

Containerized Freight

Secure

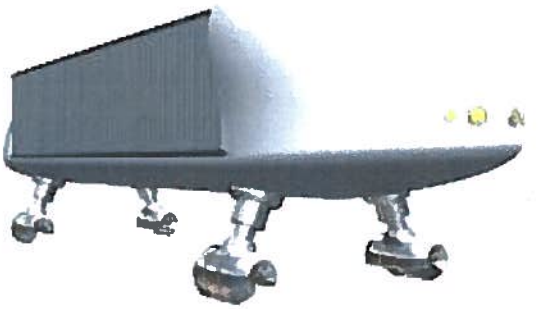
Fast

Easy to Use

Stable

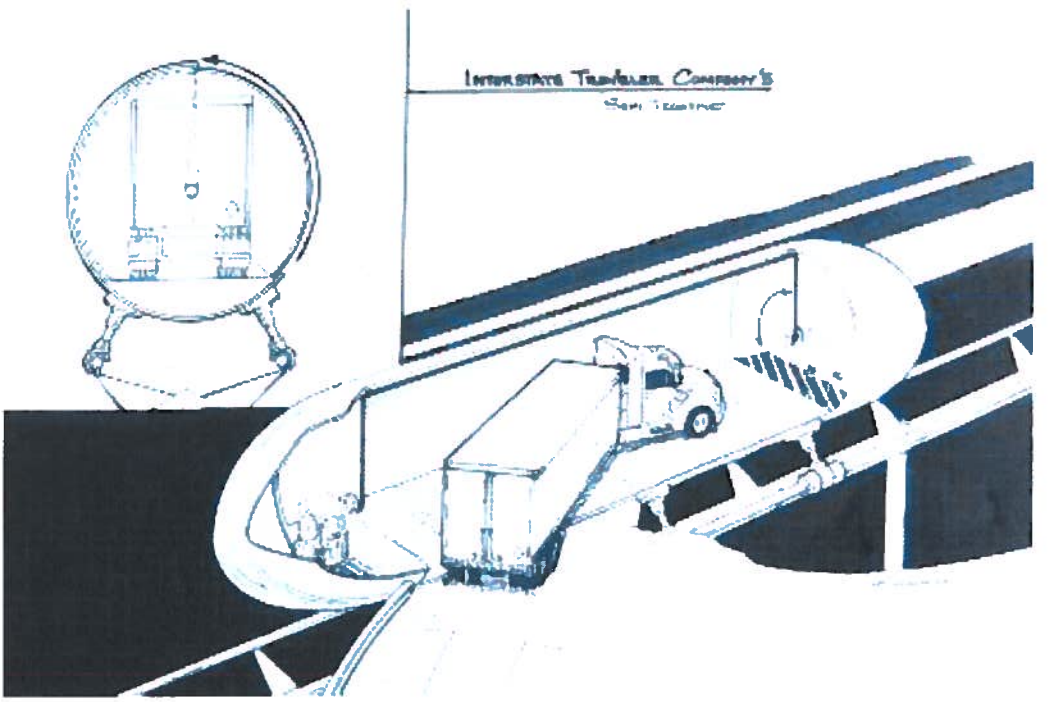
Reduced Risk

The Integration with Port Security is clear to see with the fast and simple container transports. As the HyRail network expands, so will the access points for Containerized Freight.

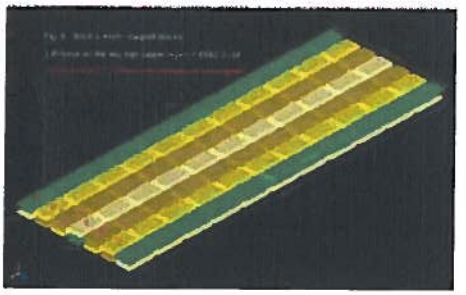


One step above containerized freight will be the closed shell flat bed, just big enough to load an 18 wheeler, Tractor and all. You will be able to send your Driver, your Truck and your Freight to any place in the Country without the worries of traffic jams or bad weather.

Traditional freight haulers, air cargo, heavy rail hubs and sea ports will all be linked together creating an even greater national distribution network from Port, to Hub, to Factory to Consumer accelerating our economy globally



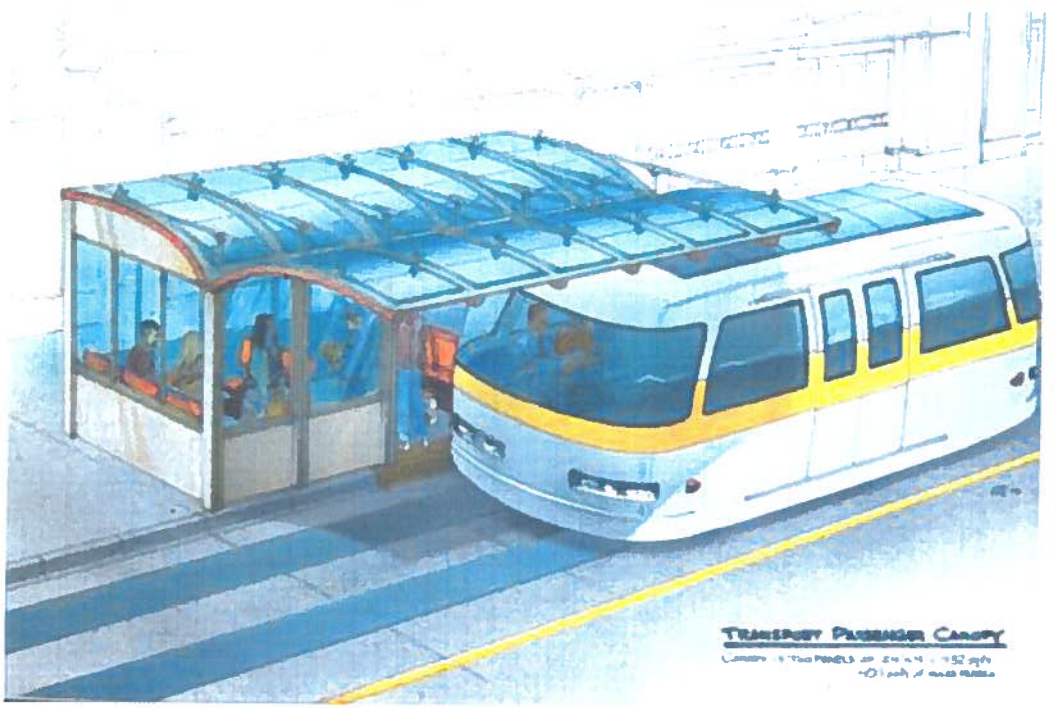
Solar City Traveler



The Solar City Traveler is an ideal lite-duty, 'At-Grade' maglev public transportation system.

Each Solar City Transport glides along a virtual guide way, or "Glideway", which is created using two sets of magnet arrays, one above the other, creating a virtual guideway in the center of the lower array and creating an opposite pair of ridges from the top to guide the transport.

The Solar City Traveler can be installed into any sidewalk or roadway and extend across the country side as an ideal Inter-Urban transit system for city streets connecting to surface streets in the urban areas, and beyond.



Secure

Reliable

Comfortable

Community

Worldly

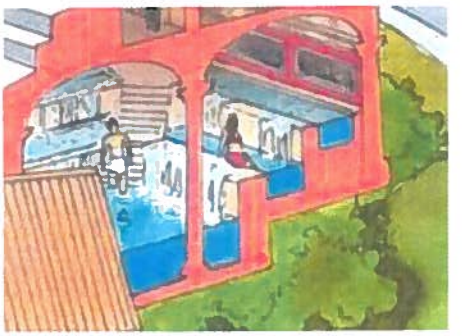
Local Flavor

Community

Center

Civic Centers

With the HyRail, the clear waters will flow around the clock.

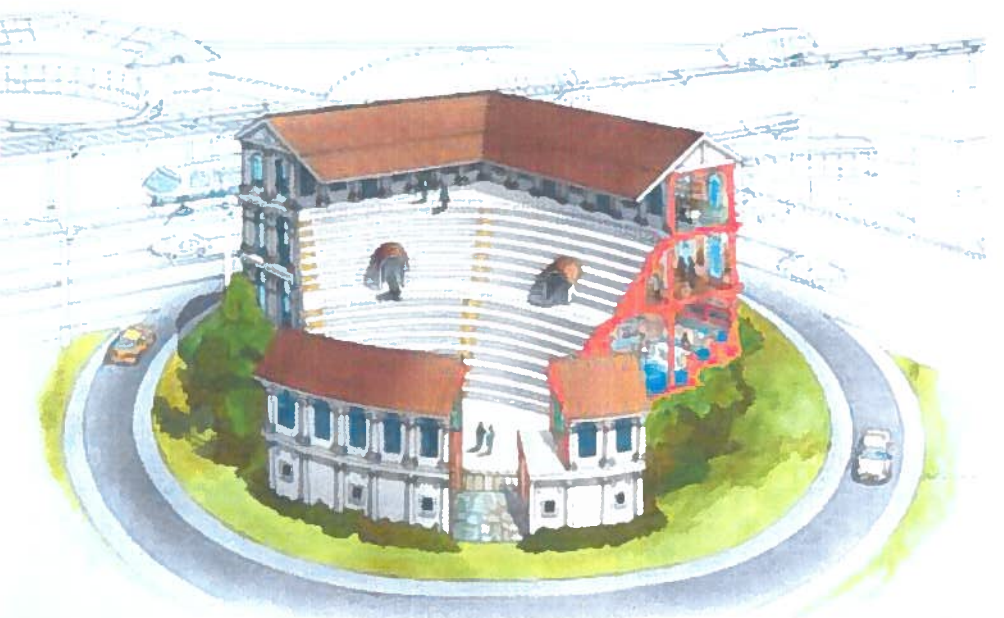


Reaching back to the great architects of the Bath House, the Public Forum and concepts of a public market area of many small shops, we here have rendered an integration of the best of the best.

At the HyRail Civic Centers visitors will enjoy the greatest facilities in the world to enjoy a Clean, Healthy, Happy and Worldly experience.

The Civic Center is a perfect integration of hospitality and entertainment. With a constant flow of pure water, we will be able to support state of the art public pools, saunas, mineral baths and centers for the finest culinary arts. Each will help create jobs in the massage therapy, physical training, inspired Master Chefs of culinary arts and live entertainment.

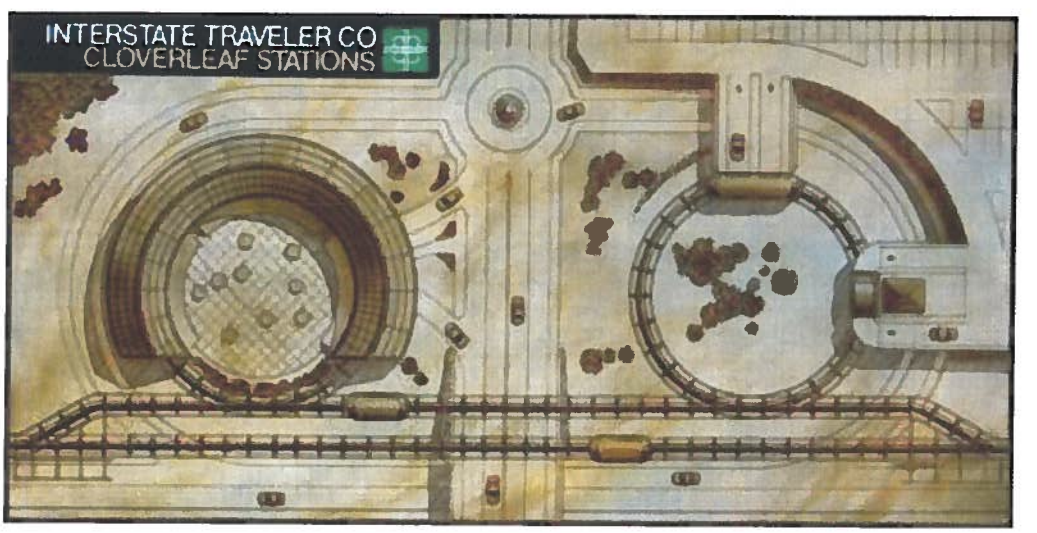
Whether you want a hot mineral bath, or a cool lap in the pool... You are just a few minutes down the rail to paradise.



The Traveler Station

Key to the success of any public transit system is access.

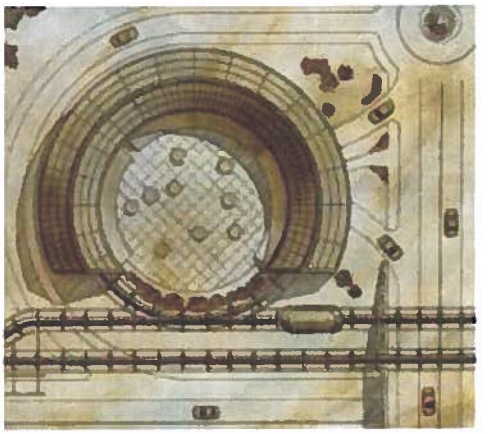
The Traveler Stations will be everywhere... Each interchange where people enter and exit the Interstate Highway will have a set of Traveler Stations that will enable ease of access, parking, and amenities that will rival any 'public transit stop' in the world.



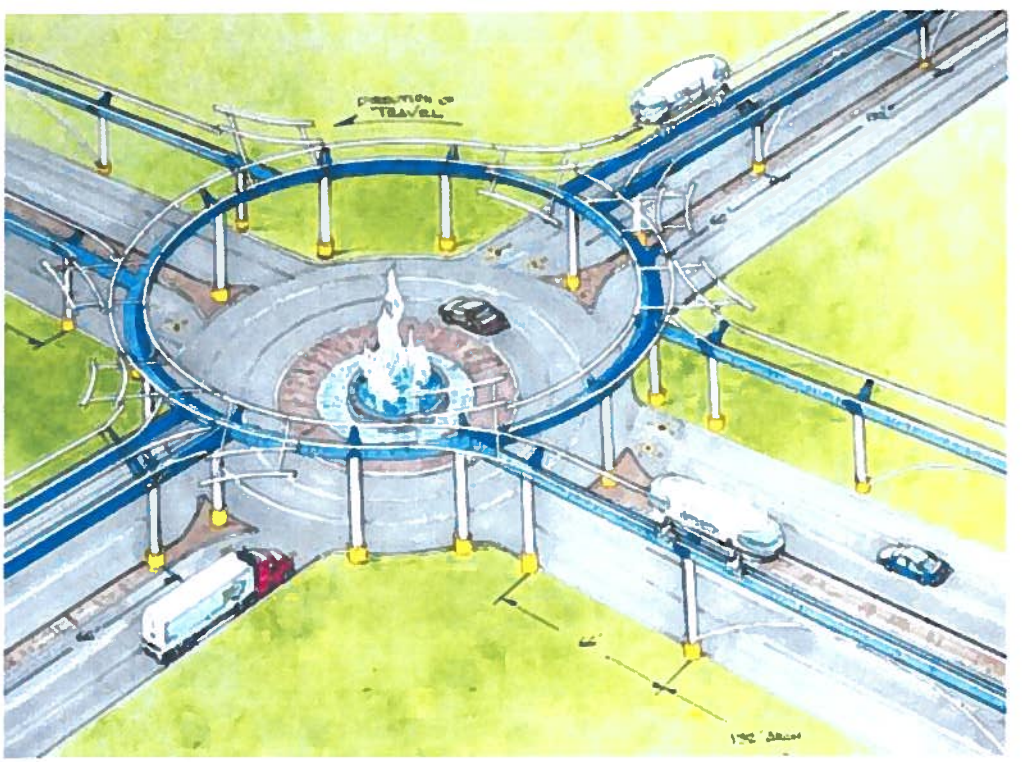
Everywhere

Round-About

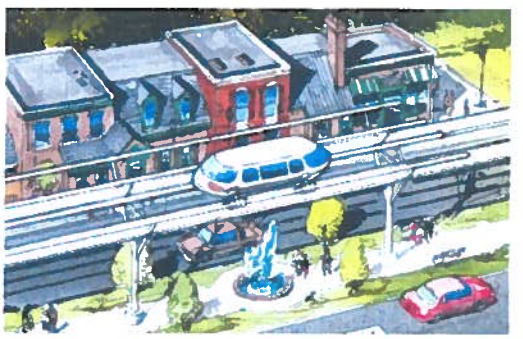
The safest way to handle roadway Intersections.



Looking forward to safer roads and the replacement of typical road way intersections where traffic lights direct the flow of traffic in an unreliable and inefficient manner, the Round-About will become the standard. Studies have shown that traffic lights waste time and fuel and create a false sense of security that leads to fatal car accidents by the thousands. The Interstate Traveler Company is most pleased to here show how the Hydrogen Super Highway is a natural fit for all Round-Abouts large and small and will safely transition maglev transports from on intersecting rail networks safely and with quickness.



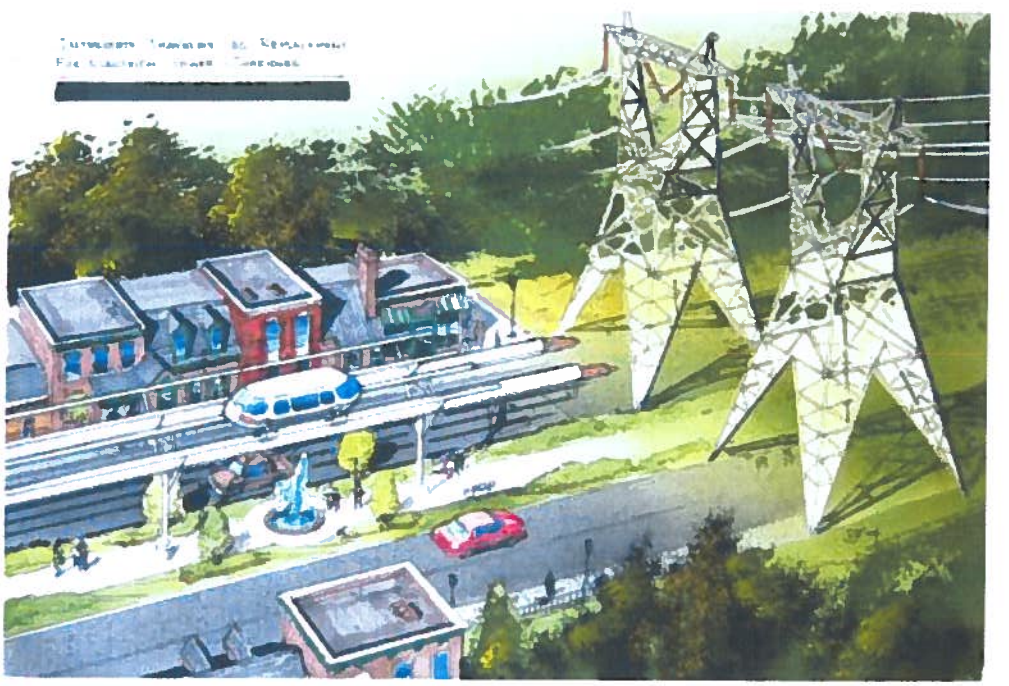
Optimize Utility Corridors



It has been said for many years that no new highways will be built in America. Well, that may be true, but with the HyRail the existing electrical energy "highways" of voltage hi-tension lines can be upgraded to move more than just electricity.

Our continents are cris-crossed by thousands of miles of high-tension lines. With the HyRail the utility companies that own those lines can reap the benefits from recycling all that bulk metal and reap the benefits of building commercial roads, condos and businesses where they could not exist before...

Even Rail Roads will also be able to reap the benefits. The hundreds of thousands of miles of Rail Road rights of way can be quickly upgraded without disturbing the existing heavy rail system that is in place. With the Highways, the High-Tension line corridors, and the Rail Road rights of way all coming on-line together, the greater number of people will be employed and served for generations to come.



Recycle

Reuse

Recuperate

Reinvigorate

New Roads

New Highways

New Villages

New Cities

Endless

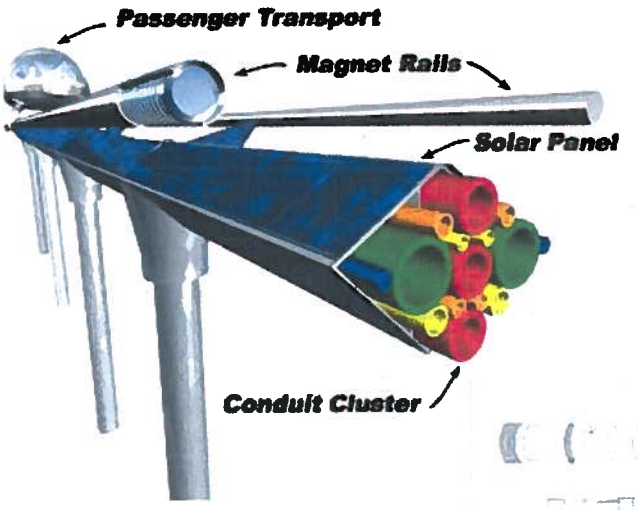
Water

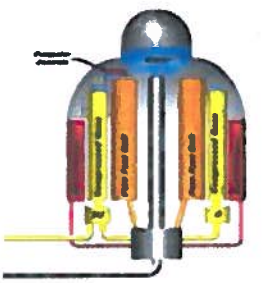
Endless

Hydrogen

Solar - Hydrogen Cycle

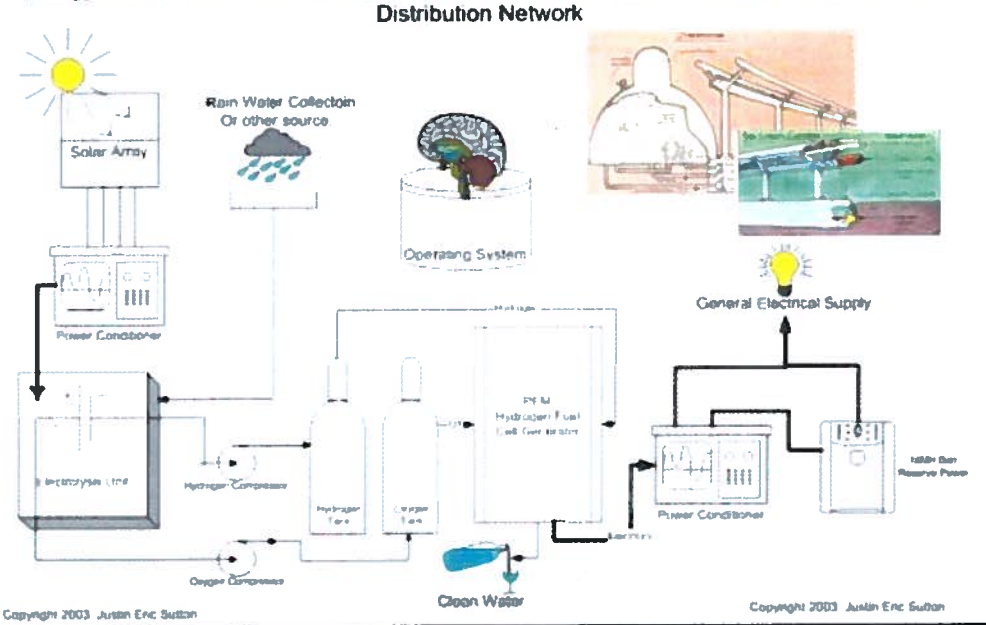
As the sun rises in the East to open and warm up the Day, so stands the Hydrogen Super Highway to receive the rays of the sun and put it to good use serving millions of travelers and local communities where ever the rail may go.





The Interstate Traveler Company, LLC

Energy Process for Solar / Hydrogen Powered Maglev Rail and Hydrogen Production and Distribution Network



The Desert Blooms

Here is the story:

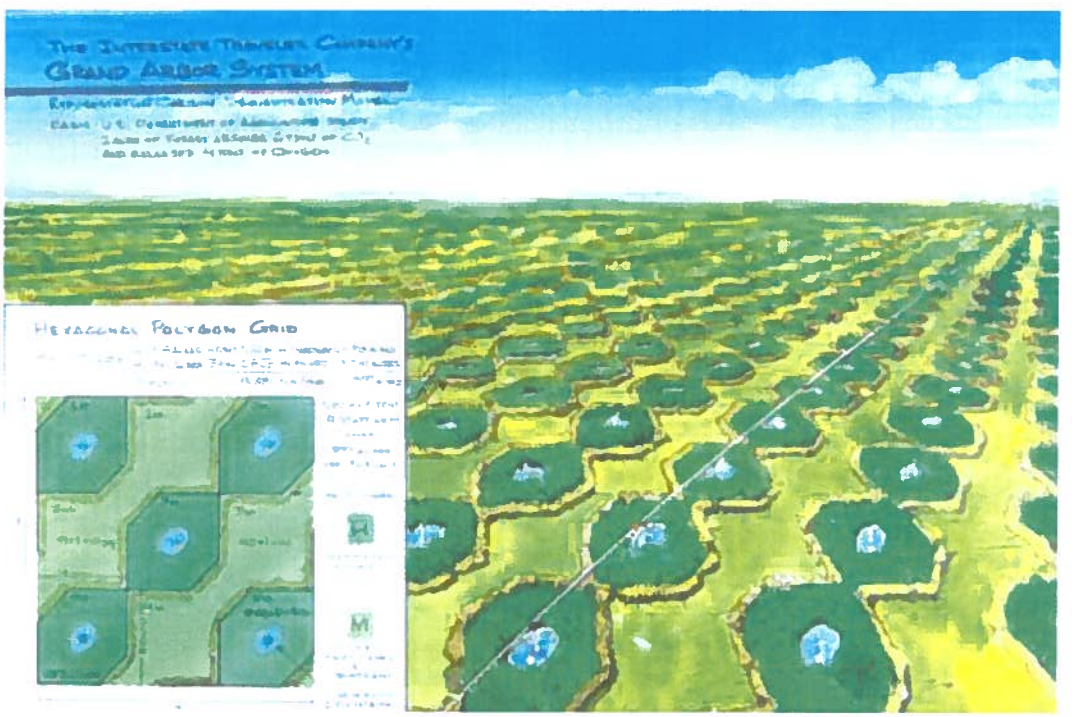
Feed the Hungry

Generate Clean Water

Carbon Offset

Hydroponic systems can grow food almost anywhere...

Sustainable Agriculture



Water

Agriculture

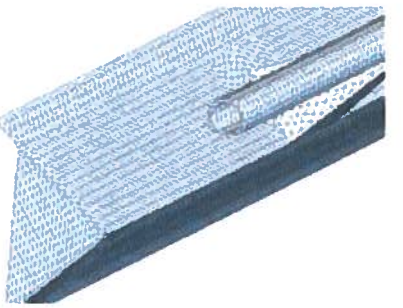
Sanitation

Hydroponics

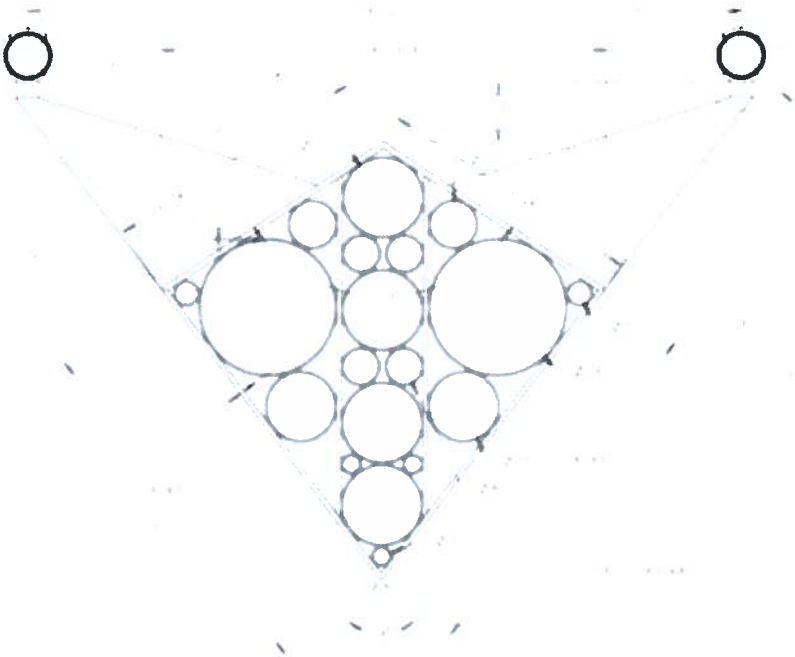
Plasma Reactors

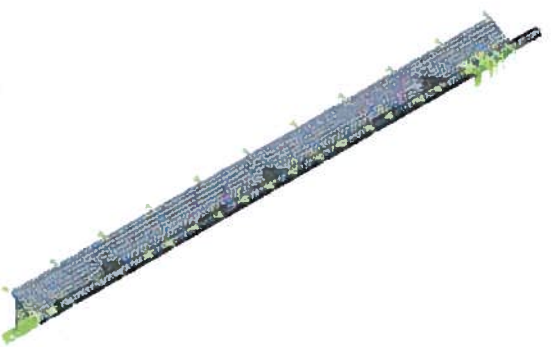
Structural Rail Geometry

Using traditional Finite Element Analysis we have completed our preliminary engineering on multiple rail geometries.



The basic design of the HyRail enables the fastest assembly of the strongest rail with the least amount of materials to guarantee efficiency every step of the way.





CAD

CAM

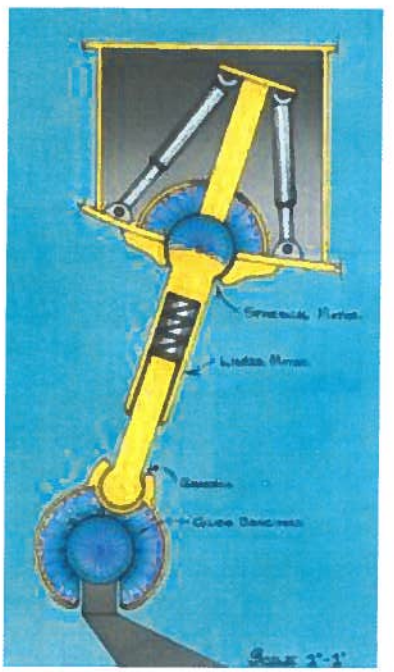
FEA

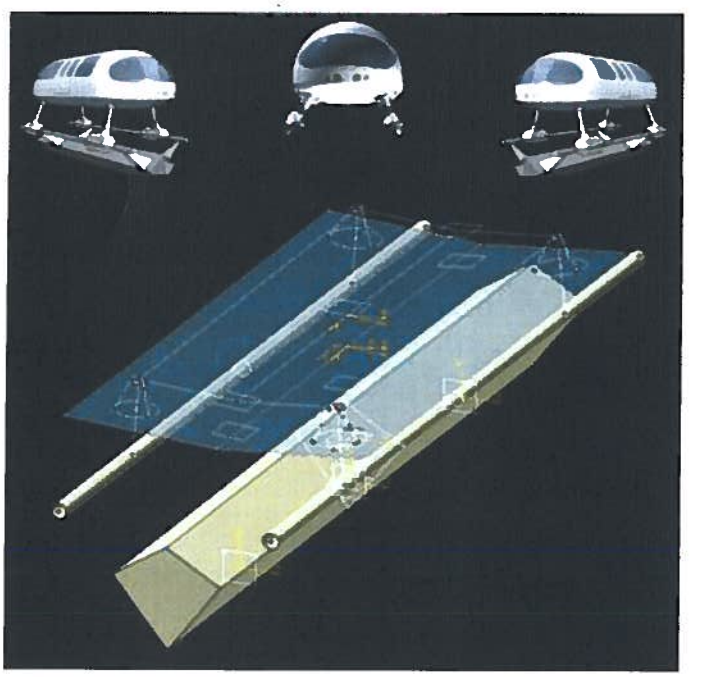
FMA

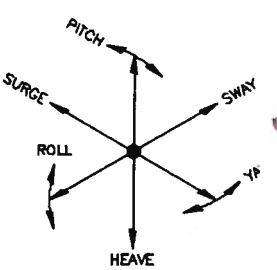
Dynamic Suspension

The great and uniquely successful attribute of the HyRail is the G-Force mitigation made possible only by the HyRail's unique suspension system.

The kinematic feed back from a pendulum or via solid state accelerometers, the suspension system will feel the G-Forces and automatically adjust the Transport, keeping the forces perpendicular to the floor.







G-Force Mitigation

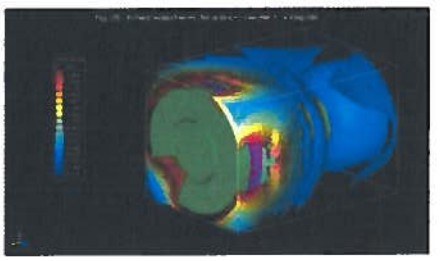
Magnetic Levitation

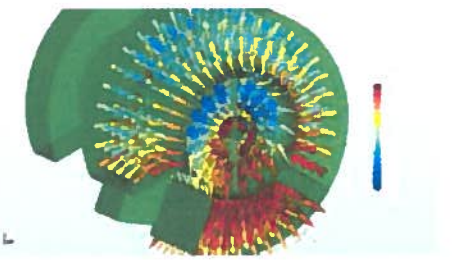
The unique and practical application of radially arranged magnetic fields enables the most versatile maglev transportation system possible hosting motors of almost any size and combination. So, whether your transport has two motors, six motors or even twelve, the rail will work perfectly.

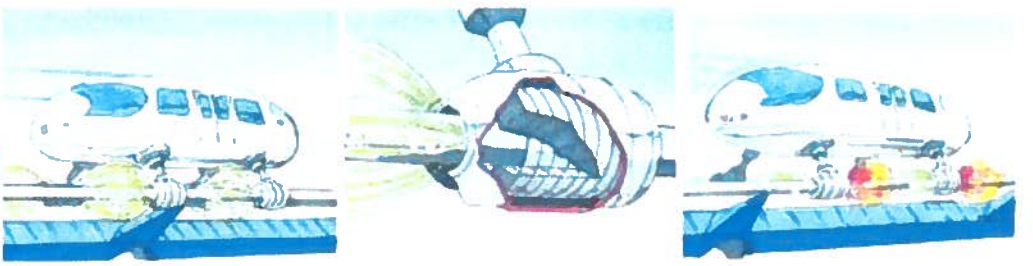
Efficient

Powerful

Quiet



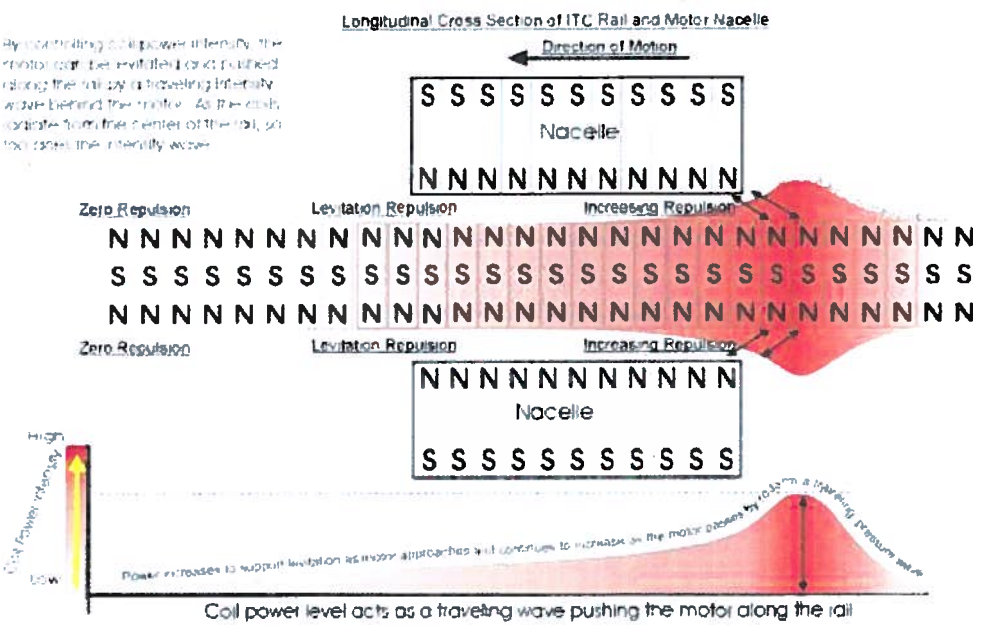




Interstate Traveler Linear Motor and Levitation Coil Arrangement

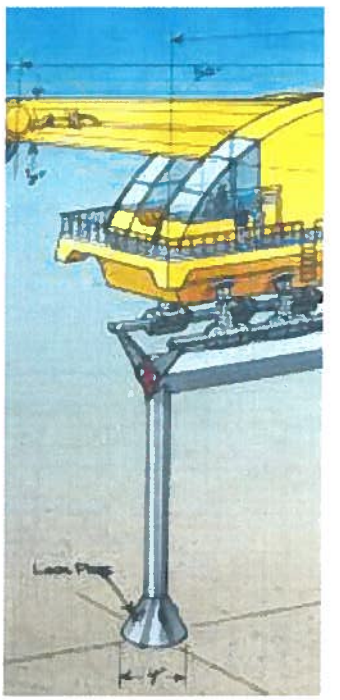
Traveling Wave Linear Propulsion

(One of several methods to employ the ITC Rail Coil Arrangement to provide levitation and position control)



Coil power level acts as a traveling wave pushing the motor along the rail

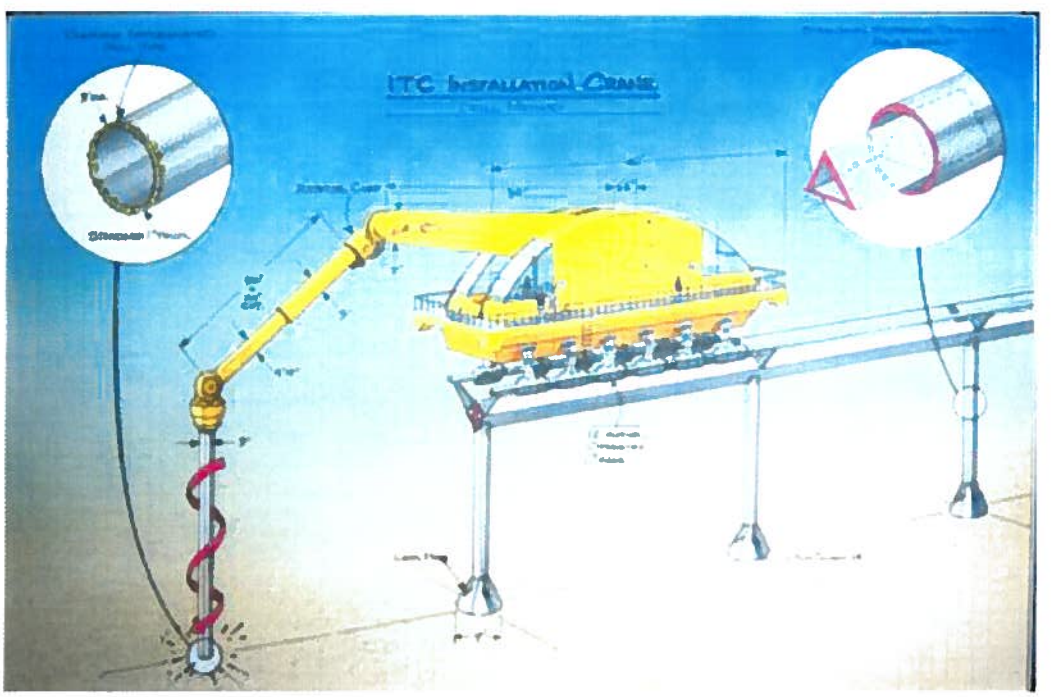
Rapid Installation



From bedrock to soft soil, the HyRail Installation Crane can set up stanchions fast. Using the stanchion poles themselves as giant drill bits we literally can drill our supports directly into bedrock.

With our logistics predicting a combined output of more than 2,000 sections of rail per day when considering the production of 12 factories working together in America, we will need to work fast to get the system installed and operational.

With a set of eight HyRail Cranes working for each production center, we'll have 96 Cranes with installation teams working simultaneously. Working in sets of two in parallel down each right of way you can. Imagine the pace of installation when there are 96 sections or rail being installed at any one time.



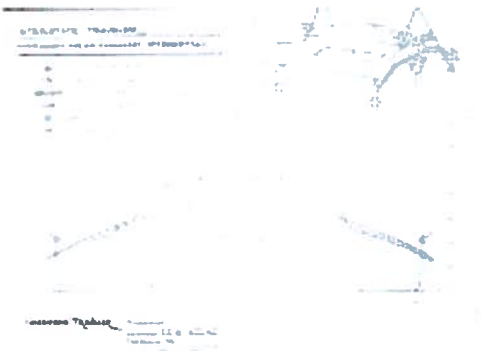
Urban Efficiency

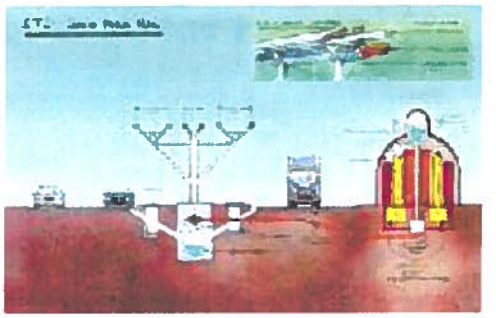
Large

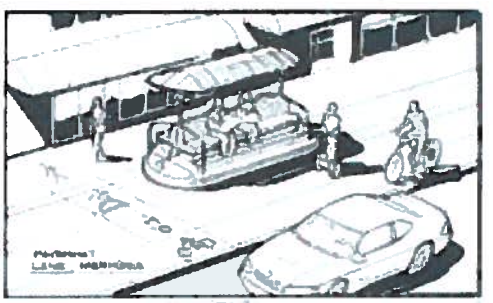
Small

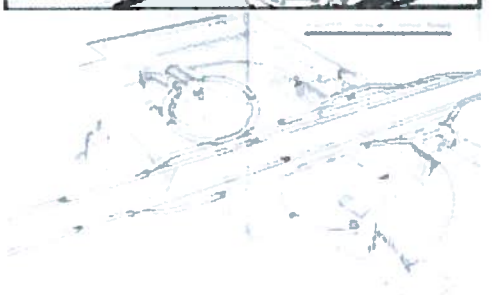
Local

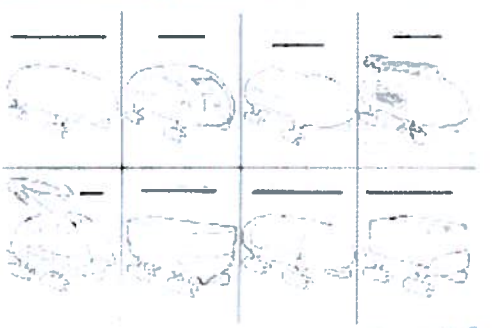
Continental

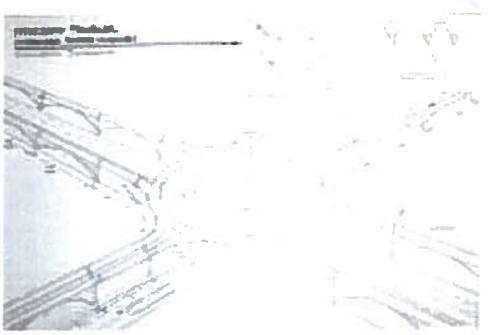


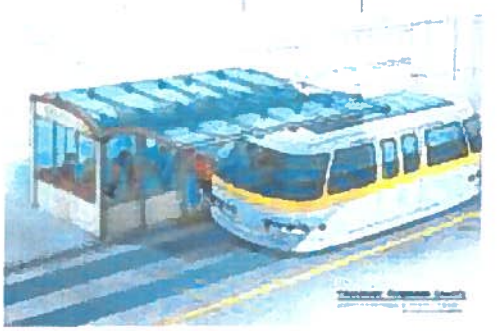




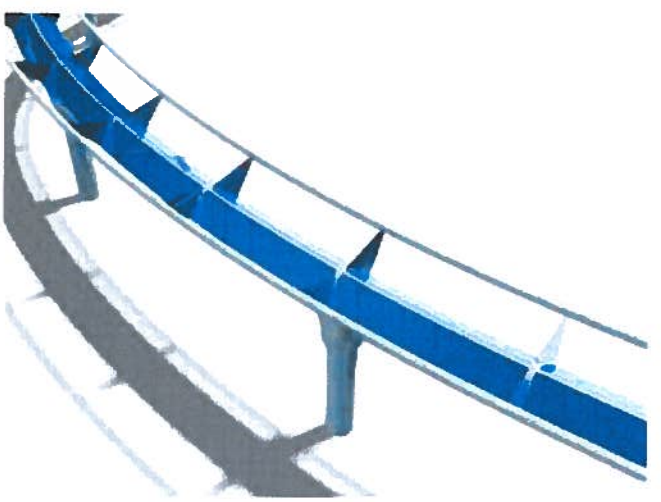








Appendices



Ten Deliverables

Rapid Transit	= $ /minute
Advertising	= $ /sign
Hydrogen	= $ /kilogram
Electricity	= $ /kilowatt
Energy Storage	= $ /kilowatt
Fiberoptics	= $ /bandwidth
Fuel pipelines	= $ /gallon or Ft^3
Liquid waste	= $ /barrel
Brand New Water	= $ /liter
Internet / Telecom	= $ /minute

There are many other revenue streams that will come on-line in the future such as build license agreements, and other special permits and contract services.

Per Capita Revenue Share

50 / 50 Revenue Share on Public Rights of Way

In the United States, the Interstate Traveler Company, LLC has established a Per Capita Revenue Share proposal where half of the revenue gathered from operations on public rights of way will be shared with eight levels of government support in the following manner:

1	Federal	12.5%
2	State	12.5%
3	County	12.5%
4	Local	12.5%
5	Medical	12.5%
6	Educational	12.5%
7	Recreational	12.5%
8	Historical	12.5%

For Private Rights of Way, such as existing Toll Roads, Rail Roads and utility rights of way will receive the full and undivided 50% revenue share.

The first 100 Miles of HyRail in S.E. Michigan will pay (est) $12.50/Capita with an increasing amount per annum as the rail network expands.

Estimated Per Capita Starting at $12,000 / 1,000 People

Executive Summary

One Page Interstate Traveler Operational Summary

The Interstate Traveler Hydrogen Super Highway is a modular maglev rail system that is laminated with solar-panels which create enough power to operate all the basic systems for transportation, communications, security, water and sewer, etc., facilitated by the large cluster of conduits contained within the central support beam of the rail. The conduit cluster can be used for virtually any liquid and vapor based materials. Multiple conduits will also be dedicated to fiber optic cables for communication and super conducting electrical cables for power distribution.

The unique integration of components described above creates a self sustaining solar powered energy production and distribution system that is used to propel thousands of transport vehicles on the rail, and produce hydrogen and raw electrical energy to power traditional wheeled vehicles on the road ways, and supply hydrogen as a fuel to the growing aerospace industry in the coming decades.

The benefits of a clustered network of conduits include flexibility to enable regional networks where the larger main conduits may be dedicated to the transport of completely different liquids or gases. As an example, a network of Interstate Traveler Rail in a geographic region that is rich in crude oil resources can dedicate the largest conduits for the movement of crude oil from the field to the refinery. In other areas, the larger conduits can move agricultural methane or electrolytic hydrogen into general distribution.

The suspension system of the magnetically levitated Traveler Transports have the ability to adapt to g-forces on the fly so that the passengers will feel a greatly reduced sense of lateral movement that is felt when accelerating, decelerating and banking. Also, the suspension system enables the optimization of aerodynamics to employ the fuselage as a wing to generate lift and reduce the energy required to levitate the Transports and increase the available power for propulsion. The expected performance of the system should allow a full champagne flute to stand on a table virtually undisturbed during all normal operations.

The goals and expectations for national security include transportation reliability and safety along with resilient municipal infrastructure that is not easily damaged by typical annual weather systems and earth quakes. The Traveler meets all of these attributes, providing also a means with which to organize and optimize hundreds if not thousands of transports for emergency relief operations such as the evacuation of large districts of people in harms way from hurricanes and flood waters.

The transportation diversity opportunity created by the Traveler Rail enables an open platform where virtually any type of transport can be devised for virtually any purpose. Starting with public transit transports, freight transports and personal automobile transports for you in your car, there will also be mobile hospitals with a full compliment of emergency medical response services along with private and commercial transports for mobile restaurants, corporate / executive transports for business meetings, trade schools, universities, resorts, national park lands, and cathedrals of worship. Fleet services for large public venues crafted to promote the home-team professional sports organizations will be early adopters of this system to help "Pack the House" with public transportation.

Finally, the new national network of Traveler Stations will lay the foundation for thousands of new lease-hold franchise businesses that will serve the Travelers, provide the best public restroom facilities anywhere in the world and gainfully employ thousands of people for generations to come.

Rail Installation Check List

	Qty	Units	Description	Cost	Amount	Notes
36						
37	13	Equiv Watts/SqFt value for Solar Panels here				
38	Qty	Units	Description	Cost	Amount	Notes
39	88	Kilometer	Interstate Highway Flatwork	$6,834,385.60	$601,425,932.80	
40	55	Miles	Essential Linear Parallel Track			
41		Kilometer		$6,834,385.60		
42		Kilometer		$6,834,385.60		
43	2	Each	Grand Terminal Stations	$13,000,000.00	$26,000,000.00	
44	33	Each	Crossroad Stations Traveler Station	$3,000,000.00	$99,000,000.00	
45	11	Kilometer	Sidetrack to Local Public Station	$6,834,385.60	$75,178,241.60	
46	13	Each	Car Ramp for Car Ferry w Parking Structure	$2,000,000.00	$26,000,000.00	
47	13	Each	Remote Public Station and parking (Basic Structure)	$1,000,000.00	$13,000,000.00	
48	13	Each	Grand Public Car (GPC)	$1,000,000.00	$13,000,000.00	
49	33	Each	Commuter Public Car (50 Passenger)	$500,000.00	$16,500,000.00	
50	131	Each	Freight Car	$300,000.00	$39,300,000.00	
51	33	Each	Car Transports	$300,000.00	$9,900,000.00	
52	46	Total Commute Cars	Total Cost for InterState Traveler Installation		$919,304,174.40	
53	33	Total Car Ferry	Cost of Steel at 1200 dollars per ton at 30 tons per section		$194,755,472.00	21%
54	79	Total Transports	Balance		$724,548,702.40	79%
55	44	Total Stations				
56	4	Total Cars / Station				
57	99.0	Total Kilometers				
58	61.5	Total Miles				
59	0.439	Stations / Essential Linear Mile				
60	3.42	Cars/mile				
61	197	Total Cars				
62						
63			Cost per Kilometer Complete System		$9,285,900.75	
64			Cost per Mile Complete System		$14,953,141.31	

Interstate Traveler Co. LLC

Rail Return On Investment via Fairbox Collections Freight Rent Advertising

Change values in yellow to see all figures update

		Grow budget or X percent	0%	
	Steps:		**61.48**	total Miles of track for this estimate
1		Passenger Fee / Minute	$1.00	
2		Car Transport Fee / Minute	$1.00	
3		Freight /	$1.00	Ton Mile
4		Total Tonage Per Freight Transport	10	Tons
5		Average Distance in Miles per Ton on Freight	131	Miles
6		Number of Freight Cars	131	
7		Total Simultaneous Capacity in Tonnage	1,310	
8		Total Ton / Mile in Freight @ 131 Miles	171,610	Ton/Miles Per Day
9		Freight Transports Total Projected Use **Annually**	62,637,650	Ton/Miles per Year
10		Average Freight Delivery Time of 131 Miles @ 131MPH	1.00	Hours
11		Total Number of Freight 1 Hour Time Blocks / Day	3,144	Time Blocks Per Day
12		Freight Transports Projected Use as an Average over 24 hours	100%	Percent of Capacity
13		Number of Pedestrian Transports	33	
14		Passengers Per Car	60	People
15		Average Time of Trip for Pedestrian	12	Minutes
16		Total Simultaneous Capacity (Pedestrians Only)	1,980	
17		Total Number of 12 Minute Time Blocks / Day	120	
18		Total Daily Capacity (Average Time * Total Capacity)	237,600	
19		Pedestrian Projected Use as an Average over 24 hours	88%	Percent of Capacity
20		Number of Car Transports	33	
21		Average Time of Trip for Car Transport	13	Minutes
22		Total Number of 13 Minute Time Blocks / Day	111	
23		Car Transports Projected Use as an Average over 24 hours	100%	Percent of Capacity
24		Pedestrian Total Projected Use **Daily**	209,088	Rides
25		Pedestrian Total Projected Use **Hourly**	8,712	
26		Pedestrian Total Projected Revenue **Daily**	$2,509,056.00	
27		Pedestrian Total Projected Use **Annually**	76,317,120	Rides
28		Pedestrian Total Projected Revenue **Annually**	$915,805,440.00	
29		Car Transports Total Projected Use **Daily**	3,655	Rides
30		Car Transports Total Projected Revenue **Daily**	$3,655.38	
31		Car Transports Total Projected Use **Annually**	1,334,215	Rides
32		Car Transports Total Projected Revenue **Annually**	$17,344,800.00	
33		Pedestrian Revenue / Trip / Single Pedestrian at $1 /minute for 12 minutes	**$12.000**	Consumer Fee For Use on a Trip
34		Car Transports Revenue / Trip / Single Car Transport at $1 /minute for 13 minutes	**$13.000**	Consumer Fee For Use on a Trip
35		Efficiency Average Speed Traveled	131	Miles per hour
36		Efficiency Possible Distance Covered Traveling at 131mph for 12 minutes	26.2	Miles (Pedestrian)
37		**Releative Cost Per Mile Traveled for Pedestrian**	$0.46	Dollars / Mile
38		Revenue All Transports / Annually	$933,150,240.00	Annual
39		Revenue for all Freight Transports	$62,637,650.00	Annual
40		Advertising Revenue Calculations	$319,536,000.00	Annual
41		Rent Revenue Calculations	$9,972,000.00	Annual
48		**Total Annual Revenue for All Transports / Advertising / Rent**	**$1,325,295,890.00**	Annual
50		**Budget>> Cost for installation for 61.48 miles**	$919,304,174.40	Cost
51		**Total Projected Annual Revenue**	$1,325,295,890.00	Annual Revenue
52		**Return on Investment at 100% of Revenue**	0.69	ROI in Years if apeared overnight
53		**Enter Dept Service Fund Percentage**	50%	
54		**Total Annual Dept Service Fund (P/P Partnership)**	$662,647,945.00	
55		**Return on Investment using Dept Service Fund**	1.387	Years
57		Enter Time to tool up manufacturing	9.00	Months
58		Enter Unforeseen Delays for Installation	3.00	Months
59		Total Production Time to make all parts	0.92	Months (production)
60			0.08	Years (production)
61		Total in Months Until Full System is installed Operational	12.92	Months
62		Total in Years Until Full System is installed Operational	1.08	Years
63		Return on Investment Using Debt Service Fund after made Operational	29.57	Months
64		Return on Investment in **Years including Startup time**	2.46	Years

Detroit Aerotropolis - Est. 60 Miles

	A	B	C	D	E	F
1	# Interstate Traveler Company, LLC					
2	Edit Values in Yellow to Recalculate					
3	## Project Summary and Analysis Tool					
4	Total Miles		61 48			
5	Total Passenger Transports		46			
6	Total Pedestrian Passenger Capacity		1,980			
7	Total Car Transports		33			
8	Total Freight Transports		131			
9	Total Stations: Travelers/Cars/Grand		48			
10	Leases Per Traveler Station		4			
11	Total Leases (Traveler Stations)		192			
12	Average Lease Payment		$3,000 00			
13	Total Lease Income per Annum		$210,240,000 00			
14	Total Square Feet of Solar (Rail)		5,193,746			
15	Total Watts / Square Feet		13			
16	Total Watts / Hour		67,518,697			
17	Total Solar Hours		5			
18	Total Watts per Day		337,593,485			
19	Total Watts per Year		123,221,621,952			
20	Total KW per Year		123,221,622			
21	Average Value / Kw		$0 10			
22	Average Annual Kw Value		$12,322,162.20			
23	Total Cost for System		$919,304,174 40			
24	Projected Annual Revenue		$1,325,295,890.00	(Fairbox, Rent, Advertising only)		
25	Return on Investment (after operational 100% Rev)		0 69	Years		
26	Public Share on Public ROW		50%			
27		Projected Annual Income (Private)	$662,647,945.00			
28		Projected Annual Public Share	$662,647,945.00			
29		**Total Expected Direct Employment**	**2,385**	JOBS Hospitality and Concierge		
30	## Cost Projection					
31	Startup Costs Final Production Model		$500,000,000			
32	Supply Chain (Credit Based)		$1,000,000,000			
33	Per Factory / Production Line		$100,000,000			
34	Annual Operational Costs		$10,253,408			
35		Total First Year Fixed Costs	$1,610,253,408			
36						
37						

Nested Domain Addressing System

Top Level	USA
Second	State
Third	County
Fourth	Township / City / Villiage
Fifth	Private Network
Sixth	Private Terminal

Example of Addressing Method — Marker: .

Ordinate	Value / Position					
USA	1					
Michigan		14				
Wayne County			1			
Redford				8		
Shopping Center					2	
Stop Number						6
	1	14	1	8	2	6

Departure ID: 1.14.1.8.2.6

Ordinate	Value / Position					
USA	1					
Illinois		17				
Cook County			14			
Chicago				1		
Shopping Center					16	
Stop Number						5
	1	17	14	1	16	5

Destination ID: 1.17.14.1.16.5

Comparisons Of SerVices

Conventional Mag/Lev Rail	Interstate TRaveler
Construction Cost: $36 Million Per Mile	Construction Cost: $10 Million Per Mile
Requires subsidies from Fed, State, and local	Subsidizes Fed, State, and local Governments
50+ Year return on investment	<2year return on investment
700 feet turning radius	60 feet turning radius
Relies on old technology	State-of-the-art technology
Ground level issues (traffc/animals, etc.)	Operates above traffc, bridges, kids, and homes
Need to acquie additional land to build	Uses existing interstate highway rights of way
Singie revenue source	Multiple revenue sources (electricity hydrogen, water, freight, Passengers, advertising, conduit cluster, rental income, TCP/IP , and energy storage)
Foreign designed and built	USA designed and built
Built and functioningin 12 years	Built and functioningin 3 years
Transportation district owned vehicles	Public and privately owned vehicles
Requires service road for construction and maintenance	No service road for construction and maintenance (built from upon itself)
Passengers only	Passenger, freight, and vehicle transport
Minimal choices in lines/stops/stations	Unlimited destination options
Rider fare $20+/ride	Rider fare $0.05/Minute
Requires driver/conductor	Driver-less TCP/IP operation
Isolated systems (regional, point-to-point)	Would connect to national system
97 thousand jobs created(CA)	Over 1 million new jobs created(CA)
Concrete construction (60 year life span)	Stainless steel construction (100+ year life span)
Interferes with existing traffc for construction	No traffc interruption during construction
Bur ns fossil fuel for electricity to run system	Environmentally perfect, uses solar and hydrogen
No additional services provided	Pr ovides conduit cluster for: cable, fber optics, telephone, water, hydrogen/oxygen, electricity sewage, and other gases and fuids
Requires an electrical grid to plug into	No grid needed, produces own power
Quiet operation	Quiet operation and environmentally perfect
	Creates fresh water from salt water, rivers, and contaminated water (highway run-off)
	Dedicated system for Homeland Security
	Moves the US to a hydrogen economy in 15 years

STATE OF MICHIGAN

HOUSE OF REPRESENTATIVES

House Resolution No. 23

Offered by Representatives DeRossett, Adamini, Anderson, Brown, Ehardt, Elkins, Gieleghem, Gillard, Jamnick, Koetje, Lipsey, Meyer, Sheltrown, Woodward, Zelenko, Amos, Bradstreet, Gleason, Hager, Howell, Murphy, Sotx, Pastor, Shackleton, Stakoe, Tobaskman, Vander Veen, Voorhees, Ward and Paletko

A RESOLUTION TO MEMORIALIZE CONGRESS TO ENACT LEGISLATION TO SUPPORT RESEARCH, DEVELOPMENT, AND CONSTRUCTION OF THE INTERSTATE TRAVELER PROJECT THROUGH THE REAUTHORIZATION OF THE TRANSPORTATION EQUITY ACT OF THE 21ST CENTURY (TEA-21) AND/OR OTHER RELATED FEDERAL PROGRAMS

WHEREAS, The Interstate Traveler Project is an elevated maglev (magnetic levitation) rail mass transit system that is based upon a conduit cluster concept powered by hydrogen and solar power. The project promises to provide travelers with a clean, quiet, safe, reliable mode of transportation. The intent of the project is to create the world's first switchable maglev rail network that will provide inter-urban, inter-city, pedestrian, automobile, and light freight transit services. The project will simultaneously produce, store, and distribute hydrogen, which will not only serve as an alternative energy resource, but also will give Michigan's automakers the incentive to produce hydrogen internal combustion engines, fuel cell cars, and the manufacturing opportunity to build maglev rail cars; and

WHEREAS, By fully integrating with the interstate highway system, existing transportation infrastructure, and mass transit systems, the Interstate Traveler Project seeks to reduce traffic congestion and air pollution while improving traffic safety and efficiency. The Interstate Traveler Project substations will utilize the existing interstate highway system's entrances and exits, providing a seamless link of private automobiles, pedestrian traffic, existing municipal bus routes, and taxi services. These substations will also support the hydrogen distribution system, as well as fiber optics, water, electricity, and other utilities. Although the Interstate Traveler Project is ideally suited for the interstate highway system, it may also be integrated with existing and abandoned railroad right-of-ways or along other appropriate lands; and

WHEREAS, The Interstate Traveler Project is consistent with the 2003 State-of-the-Union address which called on Congress to appropriate $1.2 billion for hydrogen fuel cell technology; now, therefore, be it

RESOLVED by the House of Representatives, That we memorialize Congress to enact legislation to support research, development, and construction of the Interstate Traveler Project through the reauthorization of the Transportation Equity Act of the 21st Century (TEA-21) and/or other related federal programs; and be it further

RESOLVED, That copies of this resolution be transmitted to the President of the United States Senate, the Speaker of the United States House of Representatives, and the members of the Michigan congressional delegation.

Adopted by the House of Representatives, April 10, 2003

Gary L. Randall

CLERK OF THE HOUSE OF REPRESENTATIVES

STATE OF MICHIGAN

MICHIGAN SENATE

Senate Resolution No. 89

Offered by Senators Allen, Kuipers, Jelinek, Prusi, Cropsey, Cassis, Goschka, Gilbert and Clarke

A RESOLUTION TO MEMORIALIZE CONGRESS TO ENACT LEGISLATION TO SUPPORT RESEARCH, DEVELOPMENT, AND CONSTRUCTION OF THE INTERSTATE TRAVELER PROJECT THROUGH THE REAUTHORIZATION OF THE TRANSPORTATION EQUITY ACT OF THE 21ST CENTURY (TEA-21) AND/OR OTHER RELATED FEDERAL PROGRAMS

WHEREAS, The Interstate Traveler Project is an elevated maglev (magnetic levitation) rail mass transit system that is based upon a conduit cluster concept powered by hydrogen and solar power. The project promises to provide travelers with a clean, quiet, safe, reliable mode of transportation. The intent of the project is to create the world's first switchable maglev rail network that will provide interurban/intercity pedestrian, automobile, and light freight transit services. The project will simultaneously produce, store, and distribute hydrogen, which will not only serve as an alternative energy source, but also give Michigan's automakers the incentive to produce hydrogen internal combustion engines, fuel cell cars, and the manufacturing opportunity to build maglev rail cars; and

WHEREAS, By fully integrating with the interstate highway system, existing transportation infrastructure, and mass transit systems, the Interstate Traveler Project seeks to reduce traffic congestion and air pollution while improving traffic safety and efficiency. The Interstate Traveler Project substations will utilize the existing interstate highway system's entrances and exits, providing a seamless link of private automobiles, pedestrian traffic, existing municipal bus routes, and taxi services. These substations will also support the hydrogen distribution system, as well as fiber optics, water, electricity, and other utilities. Although the Interstate Traveler Project is ideally suited for the interstate highway system, it may also be integrated with existing and abandoned railroad right-of-ways or along other appropriate lands; and

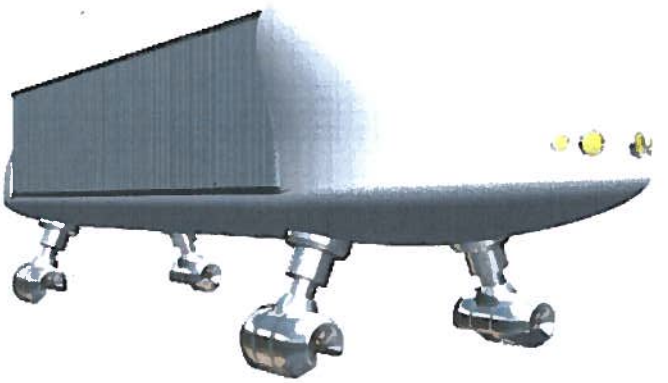
WHEREAS, The Interstate Traveler Project is consistent with the 2003 State of the Union address, which called on Congress to appropriate $1.2 billion for hydrogen fuel cell technology; now, therefore, be it

RESOLVED BY THE SENATE, That we memorialize Congress to enact legislation to support research, development, and construction of the Interstate Traveler Project through the reauthorization of the Transportation Equity Act of the 21st Century (TEA-21) and/or other related federal programs; and be it further

RESOLVED, That a copy of this resolution be transmitted to the President of the United States Senate, the Speaker of the United States House of Representatives, and the members of the Michigan congressional delegation.

Adopted by the Senate, May 28, 2003.

WorldWide Hydrogen Super Highways

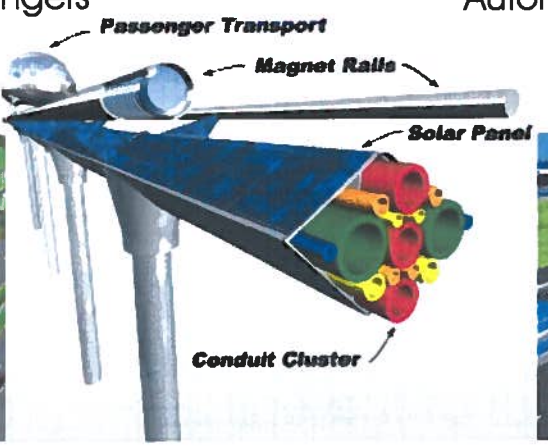


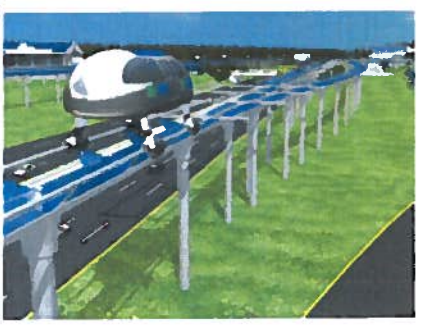
High Speed Containerized Shipping

Freight

Passengers

Automobiles



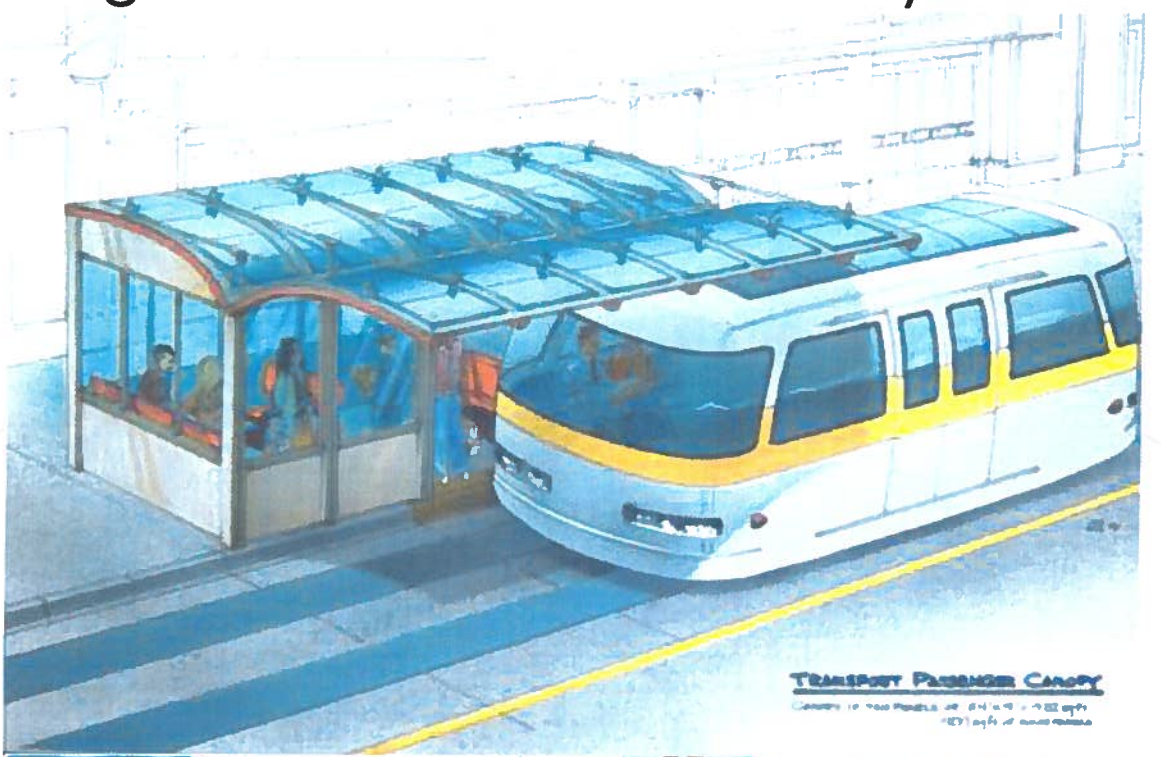


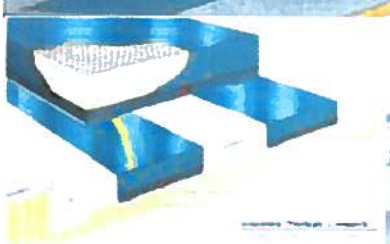
< www.HydrogenSuperHighway.com >

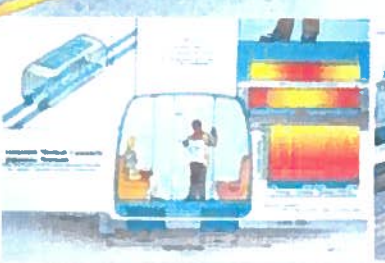
WorldWide Hydrogen Super Highways

Solar City Traveler

At-grade Public Transit For City Streets







A Proud Supporter of the United Negro College Fund

< www.HydrogenSuperHighway.com >

Interstate Traveler Company. LLC

Operational Goals and Principles in Design for the HyRail in an Earthquake Environment

They HyRail is designed to accommodate and mitigate the effects of earth quakes on its structure to such a degree that only the most severe earth quakes would disable or damage the system.

When an earth quake sends out the various forms of seismic waves through soft soils and bed rock. there is an opportunity to create the direct resonance of the seismic waves along the length of the HyRail directly affected by the local soil bedrock displacement which can send a ripple along the length of the rail beyond the local displacement.

There are several ways that the HyRail is quipped counteract the potential damaging effects of resonance caused by an earth quake.

First there is the plane geometry of the central support beam (Conduit Cluster) where in the intersecting planes of plate steal stiffen the rail to such a degree that the necessary elasticity of the metal is counteracted it a high degree. Case in point: picture a sheet of plate steel 80 feet long. 4 feet wide and 1 inch thick. Natural resonance in a wave form perpendicular plane that is 80x4 would make it ring like a bell and sustain for quite some time as the elasticity of the plate has it's least resistance perpendicular to the 1 inch thickness. Turn ninety degrees out of phase and the elasticity vanishes as the plane is now trying to displace the entire thickness of 4 feet of steel. In the central support there are seven plates of steel welded at specific angles other than 90 degrees that enable greater stiffness and an increases resistance to resonance.

Second there is the geometry of the Stanchion poles for the HyRail which are specified as 3 feet outer diameter with a 1 inch sidewall. As the HyRail will be normalized in grade to keep the top level of the rail as flat as possible while the terrain beneath it undulates and changes from place to place such that the length of each Stanchion pole will be unique. This variation in length of Stanchion pole helps prevent resonance. Further the insertion of a triangular tube made of three plates of steel that fits directly inside the inner diameter of the Stanchion provides three planes of 120 degrees out of phase that not only add tensile strength. they help prevent resonance. So the Stanchions have a two-fold protection against resonance. in their random length. and in the internal triangular structure.

Third. the HyRail can be equipped with sections of rail that can be completely opened thus physically terminating the segment with the shockwave acting upon it. These segment breaks in the HyRail are already established every three miles as a part of the conduit cluster interface with the Utility Substations. While segment break may not be required in most places in the world. they would be a standard in areas where earth quakes are expected.

As an application of the laws of physics, the HyRail may also employ a series of electromagnetic resonators of adequate mass to quickly set up a destructive wave form to destroy a resonance that was set up by an earth quake. With a sensor network on the rail system connected via fiber optics, the moment an earth quake is detected by the global seismographic network, the HyRail can begin to resonate. Of course there may be an increased risk in the employment of this application of force since the creation of a wave form intended to be destructive could, if the resonance timing is complimentary would create the opposite effect and double the resonance rather than cancel it out, in which case, it may be best to keep it simple and rely on the geometry of the structure and the segment breaks to protect the system.

In the extreme cases of soil condition change from earth quakes such as shear displacement, liquefaction and land slides we have the following considerations:

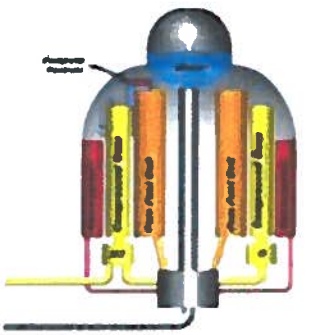
Displacement - The taller the Stanchion poles the greater amount of flexibility. Should a later sheer displace the ground 10 feet, the stanchions would divide the displacement such that the deflection would be as if five feet of displacement acted upon each stanchion pole individually setting up a torsion stress at the top of the Stanchion where is it connected to the Conduit Cluster of the HyRail. In areas where there are known shear faults specialized capitals will be installed on top of the Stachions to connect to the HyRail that enable a specific amount of movement to absorb the tension without transmitting the strain into structure components of the HyRail or how it is safely connected to the Capital on top of the stanchion pole.

Liquifaction - As many researchers have already quanfied the various viscosities of soils subject to resonance. When the HyRail is being installed into soil conditions that are subject to a high degree of liquefaction, oversized 'feet' as depicted in the HyRail Installation Crane Diagram can be dropped over the Stanchion pole and buried in the soil to increase the surface area and volumetric displacement to increase buoyancy of the stanchion poles in the affected soil.

Land Slide – Depending on severity, the HyRail will perform quite well as the hydrodynamic drag of a mud slide may easily wash around the Stanchion pole without ripping out of the ground. In the case of massive land slides there is not much that can be done when the large section of land is shifted by slope or Horst and Graben fault blocking.

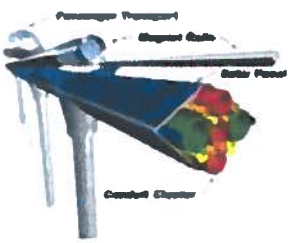
Hydrogen Super Highway Operations In Extreme Desert Conditions vs. At-Grade Steel Wheel Trains

Resilience against sand storms, dune migration, and airborne particulate is key to the successful long term operation of any transportation system in a Desert Like environment. The Hydrogen Super Highway (HSH) magnetic levitation rail system has been optimized to self sustain under solar power dedicated to the electrolysis of water which enables the reproduction of water with the recombination of Hydrogen and Oxygen produced by the electrolytic decomposition of water. Both gases are stored and when electricity is in demand to operate the sub systems, the hydrogen is recombined with the same oxygen it was separated from in the first step. This process may be repeated indefinitely in a closed loop system; therefore the external environmental conditions outside have virtually no effect on the continuous operation of the system, other than availability of sunshine. The utility substations can be buried under sand dunes and continue to function as long as they are supplied with electrical energy to power the first step of electrolysis, thereby creating pure water from ocean brine or contaminated water.



Closed - Loop Utility Substation

Basic environmental conditions of what is generalized as "Desert Like" can vary widely in both temperature ranges and the amount of wind or rain, if any, including the formation of sand dunes, if any. Features of sand dunes such as size shape and rate of migration are easily measured and predicted and may be measured with precision resolution using satellite imaging. They can range from smaller than a meter to much greater than 500 meters in length and may become quite mountainous. Natural features, region by region, such as the amount and general granularity of available sand for eolian deposition, and large geologic features such as bed rock outcroppings, unavoidably affect a continuous force that shapes the local dune formations. This reflects on how we can create large artificial structures in a sand dune environment to optimize wind currents to reshape and redirect the migration of sand dunes. This is demonstrated to a small degree with the installation of our stanchion poles which will create a new permanent airfoil that will generate an effect on local wind currents and directly begin the formation of new small dunes on the down-wind side where suitable conditions may exist.

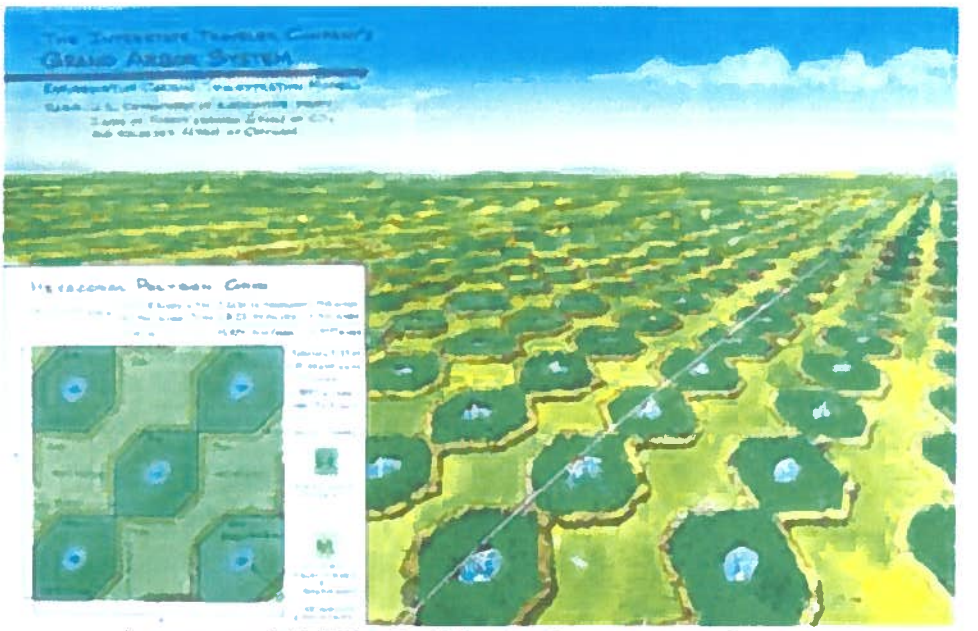


HyRail - "Sand Proof" Geometry

To protect the rail itself from accumulation of airborne particles the simple geometry of the rail takes into account the necessary angles to prevent the accumulation of dust and sand, anywhere; i.e. the tubular rails leave no place for debris to rest. The air pressure wave in front of a Transport, and eddy currents generated behind it while traveling at a high rate of speed will keep fine dust from accumulating. Additionally, purpose built service vehicles can follow a standard maintenance protocol to clean the rail.

Replaceable skins over the solar panels that protect the solar panel from abrasion may will extend usable life and ensure maximum energy generation. Centrifugal particulate filters for air circulation in Transports will be standard, yet they may otherwise operate in a closed loop air system to extend filter life during conditions of high levels airborne particulate. Installation is fast and modular and does not require the construction of a "Road Bed" or "Ballast" which is required for standard steel wheel trains.

Clearly an elevated rail system set up with sufficient height will be unaffected by most dune environments allowing for the unimpeded eolian migration of ever changing depositional structures, yet even the smallest of sand dunes can cripple a steel wheel train over night. Expansion coefficient of metal structure optimized for curvature in the rail and the choice of metallurgy such that the extreme temperatures of the desert do not cause harm to the system.



Interstate Traveler Company's Grand Arbor Program

Interstate Traveler Company's Grand Arbor Oasis

Return On Investment:

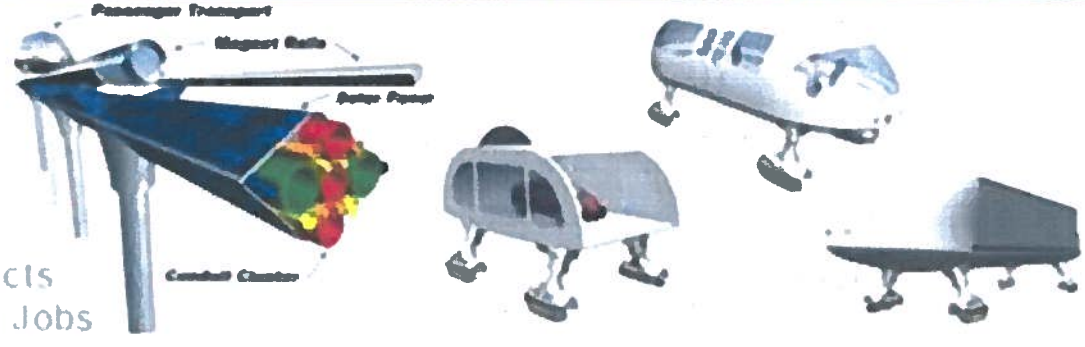
When comparing a steel wheel train system to our HSH, it is clear that both serve some utility, yet the great multitude of sub-systems and services automatically provided by the HSH including net energy production enables a rapid return on investments with generational revenue thence forth supported by the reliable agricultural support methods made possible by the consumption of solid waste from cities.

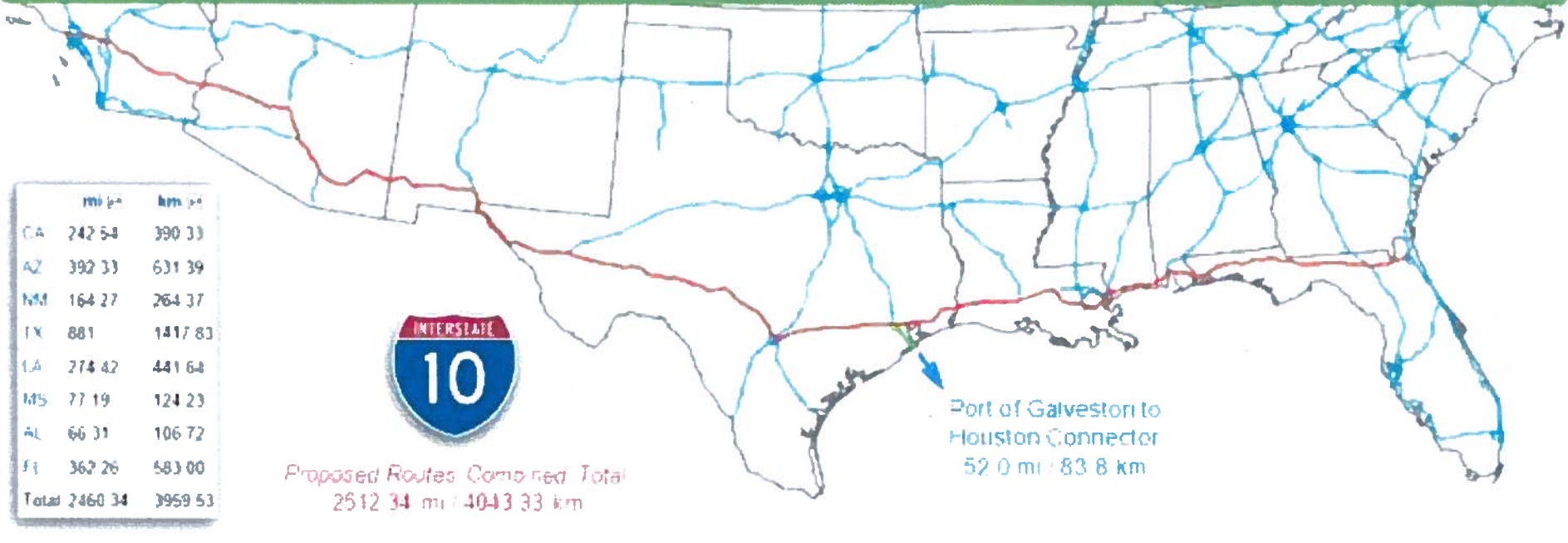
Finally, our integration of subsystems such a the plasma reactor solid waste disposal method, we have the ability to generate a continuous flow of hydroponic grade aqueous solutions to grow food or fuel grade crops in the desert to expand and enhance local oases or essentially "Colonize" areas of the desert that would otherwise be unsustainable.

Ref: http://www.interstatetraveler.us/Products/GrandArbor/grand_arbor.htm
Ref: http://www.interstatetraveler.us/Forward.Thinking/Hydroponic.Highway/HydroponicTraveler.htm

HyRail *is* the "Nationally Unified Smart Grid"

- Electricity from Solar
- Electrical Distribution Grid
- Hydrogen from Electrolysis
- Fiber Optics for Communications
- High Speed Transportation System
- Pipelines for Liquid / Vapor Based Products
- Thousands & Thousands of High Quality Jobs

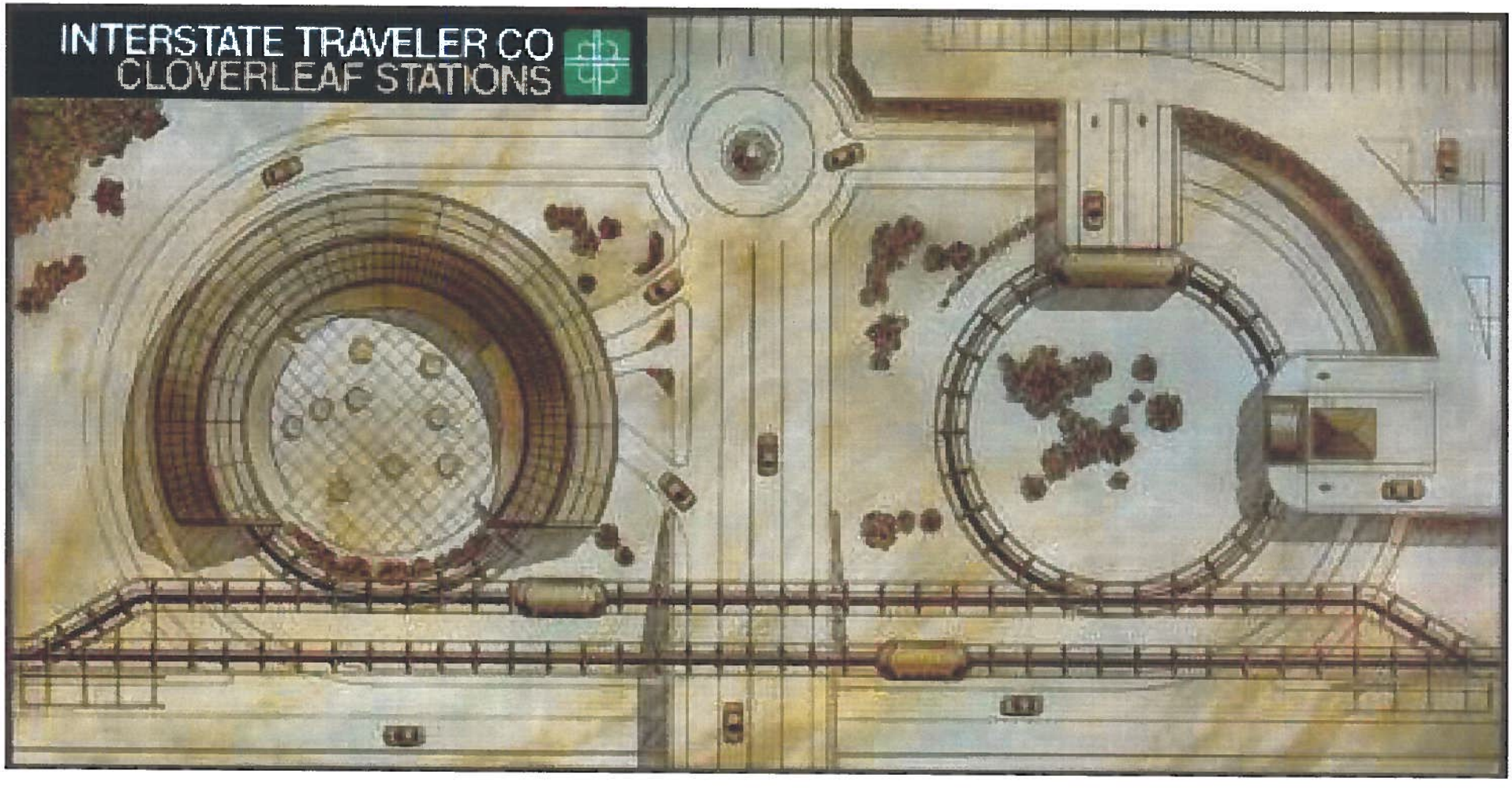


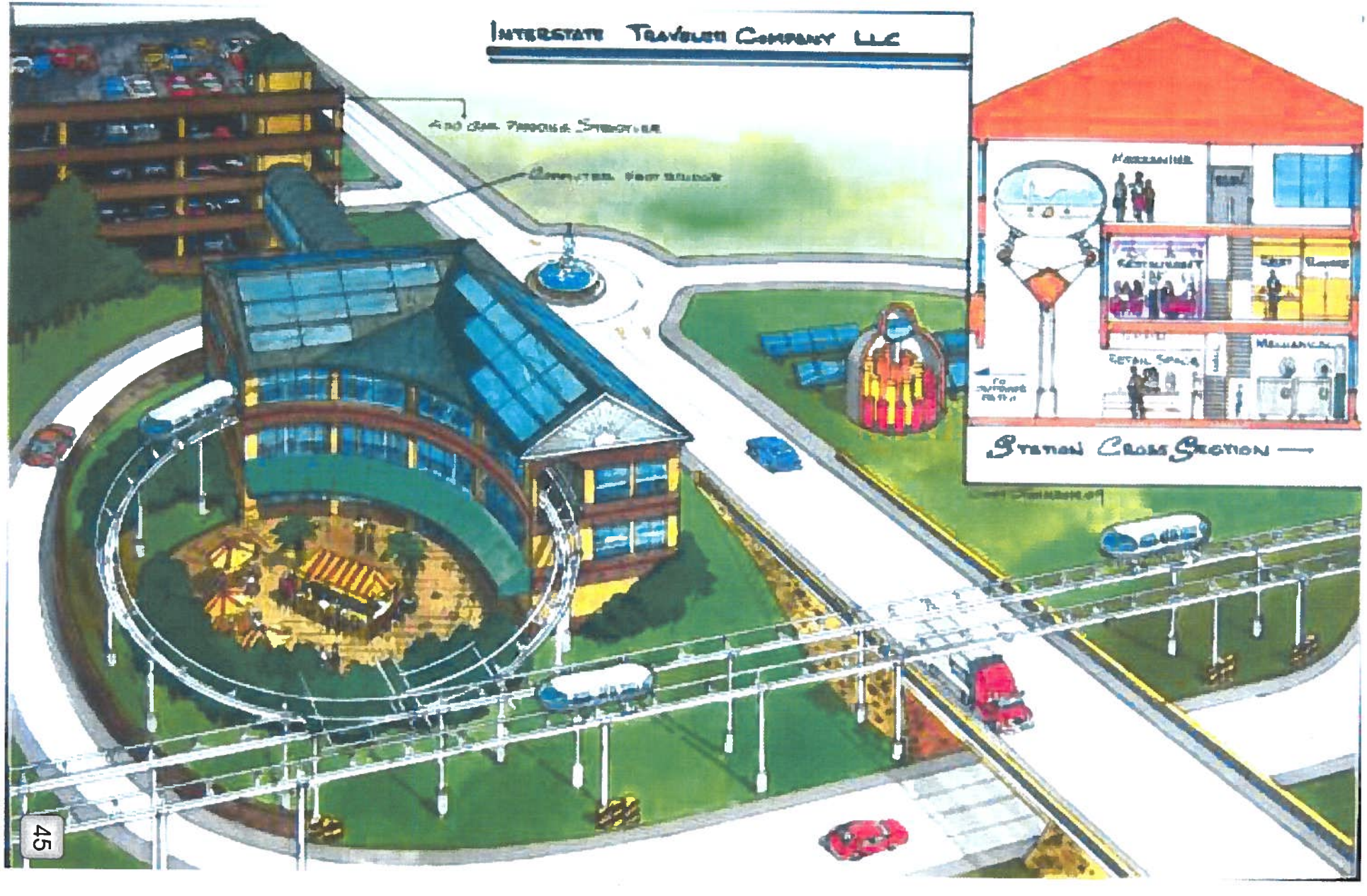


	mi	km
CA	242.54	390.33
AZ	392.33	631.39
NM	164.27	264.37
TX	881	1417.83
LA	274.42	441.64
MS	77.19	124.23
AL	66.31	106.72
FL	362.26	583.00
Total	2460.34	3959.53

I-10 AKA HyRail© Integration = 600,000 Jobs

With more than 7.8 square miles of PV Panels rated at 13 watts per square foot and an annual average of just five hours of sun light each day, this system stretched out across 2500 + mile I-10 Route will produce energy equal to the energy output of the "Hoover Dam"

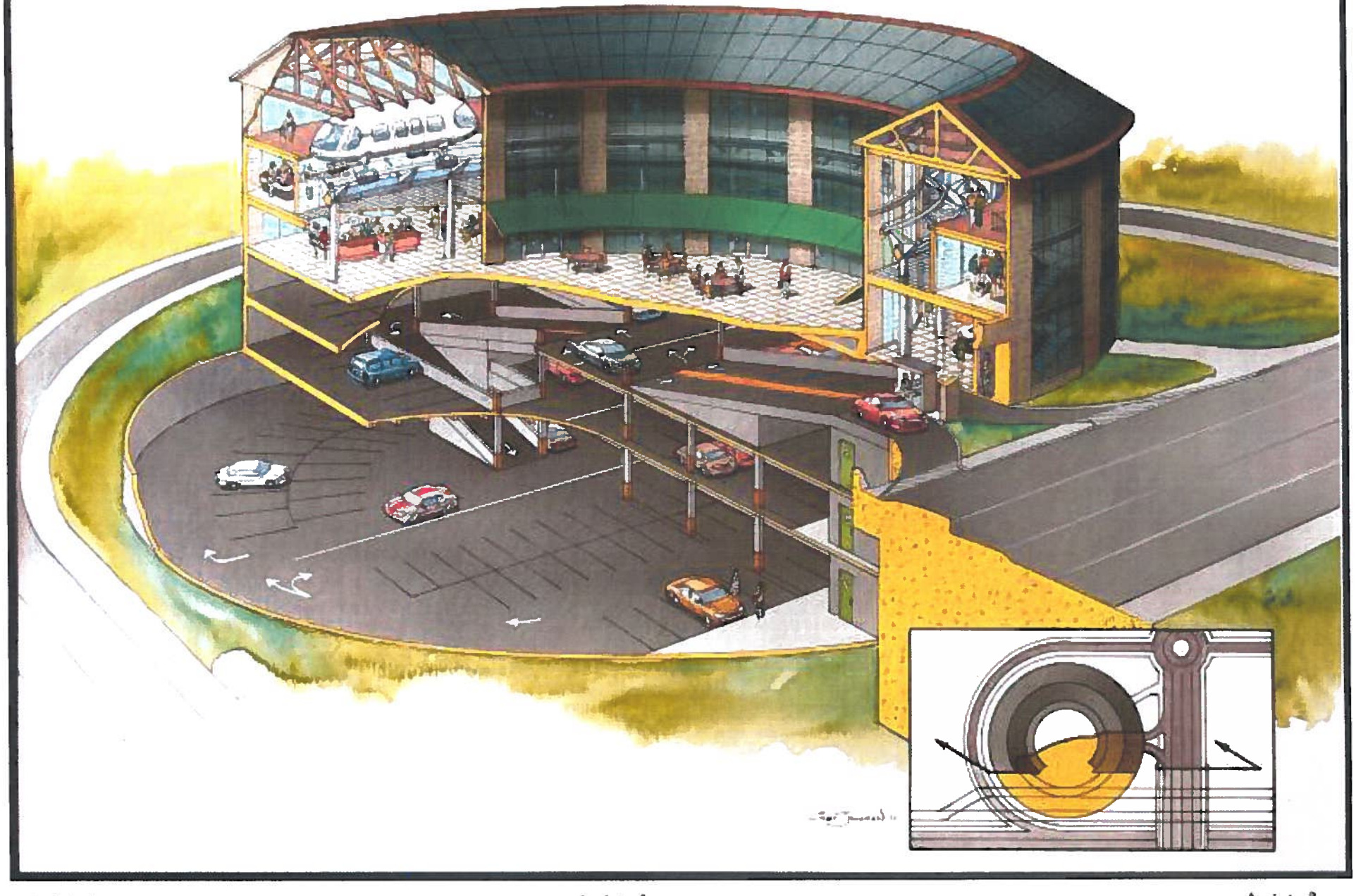

INTERSTATE TRAVELER CO
CLOVERLEAF STATIONS


Interstate Traveler Company LLC
Station Cross Section

46

INTERSTATE TRAVELER COMPANY

CLOVERLEAF STATION PARKING CUT-AWAY



To whom it may concern:

I am Addison Bain, Ph.D., a retired NASA Hydrogen Program Manager. I am a founding member of the National Hydrogen Association and the International Association for Hydrogen Energy. I have more than four decades of experience designing, operating and maintaining hydrogen systems and equipment for the US military and NASA. This includes the Apollo, Centaur and Space Shuttle programs. I was responsible for the acquisition of liquid hydrogen to support all government requirements in the US.I served as the first chairman of the US Department of Energy's Hydrogen Safety Panel. I continue to serve on that panel as a consultant to support all USDOE hydrogen projects in the US. I was instrumental in developing the NASA Hydrogen Safety Manual and the USDOE Hydrogen Safety Best Practices guideline.

I am writing today to present the Interstate Traveler Company's Hydrogen Super Highway network rail and pipeline system to you.

Over the last two years, the Founder and Managing Partner of Interstate Traveler, Justin Sutton, and their Chief Technology Officer, Adam Nehr, have kept me apprised of their progress regarding the development and construction of their innovative system. The Interstate Traveler system uses solar energy to directly operate the transportation system during sunlight hours and to create hydrogen either from water electrolysis or reformation of natural gas (with subsequent carbon sequestration) to be used as an energy storage medium for use during non sunlight hours.

The potential of this system to provide a means of hydrogen generation and distribution for its own use and for use as a fuel source for road-bound vehicles is very promising. The Interstate Traveler system stores the hydrogen every 3 miles along its route and within the pipeline network itself which provides distribution between stations. This allows the Interstate Traveler infrastructure to act as a national hydrogen fuel infrastructure making the use of hydrogen-fueled automobiles practical wherever the system is built.

The Interstate Traveler Company has expressed their intent to adopt the strictest safety protocols consistent with those I developed during my employment with NASA and to meet or exceed all other safety standards. I have been asked and agreed to participate in hydrogen production, storage and distribution aspect of the company's system design and integration. I feel that while this system is in the late stages of development and has not yet been constructed, the concept is worthy of full development and when fully implemented will be of great benefit to the states and countries which adopt this system.

Please feel free to contact me via e-mail at addbain@juno.com

Sincerely

Addison Bain Ph.D.

www.upcomingevents.ctc.com

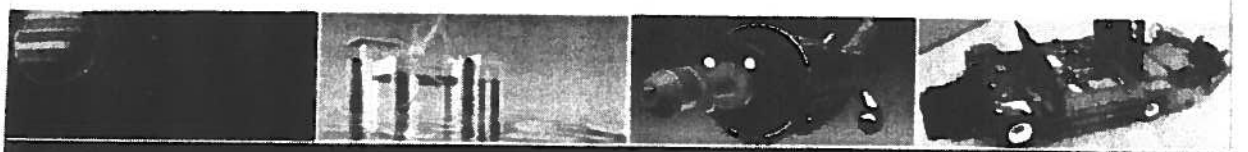
5th Annual Alternative Energy NOW

February 23–24, 2011

Shades of Green Resort, Lake Buena Vista, Florida

Sponsored by AFRL

U.S. AIR FORCE ADVANCED POWER TECHNOLOGY OFFICE APTO



Technology Horizon

Mission Security through Renewable Energy

Organized by CTC Concurrent Technologies Corporation

Wednesday, Febru... [illegible]

Time		
7:00 AM	ENTRANCE HALL – Registration/Continental Breakfast	
8:00 AM	**GENERAL SESSION** ***Administrative Announcements*** Mr. Mark Ray, Concurrent Technologies Corporation (CTC)	
8:05 AM	***Welcoming Remarks*** ***AFRL and APTO Transition*** Mr. Tom Naguy US Air Force Research Laboratory (AFRL)	
8:35 AM	***Keynote Address*** Dr. Kevin Geiss Office of the Assistant Secretary of the Air Force for Installations, Environment and Logistics	
9:00 AM	***Panel Session*** TBD	
10:00 AM	**Break**	
	CONCURRENT SESSIONS	
	BREAKOUT SESSION 1	BREAKOUT SESSION 2 Aviation BioFuels
10:30 AM	***Distributed Wind Energy Systems*** Ms. Gabriele Whyard, Southwest Windpower LLC Mr. Mark Wiedel, PE, Southwest Windpower LLC	***USAF Synthetic Fuel Certification Status*** Ms. Laura Patzer, Alternative Fuels Certification Office (AFCO)
11:00 AM	***Update on the Transportable Plasma Resource Recovery System Project at Hurlburt Field*** Mr. George "Ron" Omley, PE, US Air Force Special Operations Command (AFSOC) Ms. Gillian Holcroft, Pyrogenesis Inc.	***Potential Impact of Synthetic Paraffinic Kerosene Fuels on Emissions from the United States Air Force Air Mobility Command*** 2LT Nicholas Carter, MIT Partner
11:30 AM	***Renewable Energy Demonstration Project at Hurlburt Field, FL*** Mr. Dave Rebmu, Air Force Special Operations Command (AFSOC)	***Aviation Alternative Fuels: Commercial Perspective*** Mr. John Heimlich, Air Transport Association (ATA)
12:00 Noon	**Lunch**	
1:00 PM	***CPV Projects – Installs and Performance*** Mr. Mark Galan, Emcore	***Beyond SPK and HRJ – Aviation Biofuels on the Horizon*** Mr. Robert Allen, Air Force Research Laboratory/Fuels and Energy Branch (AFRL/RZPF)
1:30 PM	***Integration of Algae Photobioreactor System with Coal-Fired Power Plant*** Dr. Sukh Sidhu, University of Dayton Research Institute (UDRI) Dr. Moshan Kahandawala, University of Dayton Research Institute (UDRI)	***Bio-Jet Fuel Impact on Combustion Characteristics and Hot Section Materials of Gas Turbine Engines*** Mr. Nader Rizk, Rolls-Royce
2:00 PM	***The Effects of Wind Turbines on Air Traffic Control Radar*** Mr. Christopher Link, Concurrent Technologies Corporation (CTC)	***The Assured Aerospace Fuels Research Facility in Operation*** Dr. Heinz J. Robota, University of Dayton Research Institute (UDRI)
2:30 PM	***Low-Energy Concentration and Dewatering of Microalgae for Fuels, Products and Remediation*** Mr. Ross Youngs, Algaeventure Systems	***"Drop-in" ReDi Jet™ and ReDi Diesel™ Fuels from Renewable Oils*** Mr. Edward Coppola, Applied Research Associates, Inc. (ARA) Mr. J. Steven Beasley, Applied Research Associates, Inc. (ARA)
3:00 PM	**Break**	
3:15 PM	***Enhance Facility Energy Management at Naval Expeditionary Base Camp Lemonnier, Djibouti*** Mr. Dave Culver, Naval Facilities (NAVFAC) Engineering Service Center	***Renewable Jet Fuel Blendstock Derived from Fermented Isobutanol*** Dr. Joshua Taylor, Gevo, Inc.
3:45 PM	***Overall Energy Considerations for Algae Species Comparison and Selection in Algae-to-Fuels Processes*** Dr. Dirk Link, US Department of Energy / National Energy Technology Laboratory (DOE/NETL) Ms. Amalie Tuerk, Penn State University	***Amyris Renewable Diesel and Jet Fuels*** Dr. Kinkead Reiling, Amyris
4:15 PM	***A Community Approach to Creating a Waste-to-Energy Enhanced Use Lease, Hill AFB, Utah*** The Honorable William C. Anderson, Pegasus Capital Advisors Ms. Mary A. Engle, Hill Air Force Base	***Alternative Fuels for the USAF: Economic and Financial Realities*** Mr. Roger Bezdek, Management Information Services, Inc.
4:45 PM	Adjourn	
5:00 – 6:30 PM	**Networking Social**	

Thursday, February 24, 2011

7:00 AM	ENTRANCE HALL – Registration/Continental Breakfast	
	CONCURRENT SESSIONS	
	BREAKOUT SESSION 1	BREAKOUT SESSION 2
8:00 AM	*Advances in Microbial Mitigation of Aviation Fuels* Dr. David Ruiz, Air Force Research Laboratory (AFRL)	*Intelligent Power Controller for Microgrid Applications* Dr. Darrell Massie, PE, Intelligent Power & Energy Research Corporation (iPERC)
8:30 AM	*US Department of Energy Hydrogen and Fuel Cell Technologies Program - DOD Collaboration and Deployments* Mr. John H. Christensen, PE, Consultant	*Implementing Waste-to-Energy Technologies in the 21st Century* Mr. Bruce Howie, PE, HDR Engineering, Inc.
9:00 AM	*TERRAIZE Gasification for Practical Base Integration and FOB Support of WTE for the US Air Force* Ms. Renee Conly, Biomass Energy Systems, Inc. (BESI)	*Middle-Distillate-Type Fuels from Alternative Resources; The Key to Reducing US Crude-Oil Imports* Dr. Stephen Bergin, PE, VSE Corporation
9:30 AM	*The B&W mPower Reactor, a Practical, Scalable, Modular Advanced Light Water Reactor* Mr. John Ferrara, PE, Babcock & Wilcox	*Renewable Hydrogen Program at Joint Base Pearl Harbor-Hickam* Mr. Thomas Quinn, Hawaii Center for Advanced Transportation Technologies (HCATT)
10:00 AM	Break	
10:30 AM	*Large Scale Sustainable Hydrogen Infrastructure Integration with Elevated Magnetic Levitation Rail Networks* Mr. Justin Sutton, Interstate Traveler Company	*Development and Fabrication of High-Energy Li Battery* Dr. Donghai Wang, Penn State University
11:00 AM	*Critical Mission Support Through Energy Security Development of an Army Energy Security Assessment Model* Mr. Scott McCluskey, Concurrent Technologies Corporation (CTC) Ms. Susan Van Scoyoc, Concurrent Technologies Corporation (CTC)	*SOLAFLEX- Energy Storing Photovoltaics for UAV and [illegible] Applications* Mr. Henry Lomasney, Sandia SolarTechnology
11:30 AM	*The Utilization of Plasma Charge Networks to Reduce Energy Consumption in DoD Structures* Dr. Pooya Mohseni, Applied Research Associates, Inc. (ARA)	*New Research in Full Performance Jet and Diesel Blok[illegible]* Dr. Michael Wright, Naval Air Warfare Center Weapons [illegible]
12:00 PM	Lunch	
1:00 PM	*Mobile Plasma Waste to Energy System* Dr. Marco Fiorello, Sullivan International Group	*Advanced Electric Vehicles* Mr. John Mullins, Enova Systems
1:30 PM	*Environmental Life Cycle Assessment of Coal-Biomass to Liquid Jet Fuel Compared to Petroleum-Derived JP-8 Jet Fuel* Captain Wayne Kinzel, HQ Air Force Material Command, A6I7 Communications, Installations and Mission Support	*TBD*
2:00 PM	*The "Sprindrift Energy" Ocean Wave Energy Device* Mr. Brian Moffat, Sprindrift Energy Mr. Nick Tetzlaff, Sprindrift Energy	*Hydrogen Energy Storage Concept to Enable Flexible Hybrid [illegible] Operating Bases* Mr. Stephen Szymanski, Proton Energy Systems
2:30 PM	*Nano-Particle Aluminum-Water Reaction: Potential Hydrogen Generation for Fuel Cells* Mr. Marcus Smith, Air Force Research Laboratory/Fuels and Energy Branch (AFRL/RZPE)	*Renewable Energy Solutions for US Military Bases* Mr. Rich Perlman, Alliant Techsystems, Inc. (ATK) Mr. Chuck Alford, Cyr Consulting, Inc. (CCI)
3:00 PM	*Climate and Energy Policy Regulations - Drivers for Action* Mr. Michael McCann, Esquire, Concurrent Technologies Corporation	*SPIDERS and Army Installation-Scale Microgrid Overview* Ms. Melanie Johnson, US Army Engineer Research and Development Center - Construction Engineering Research Laboratory (ERDC-CERL) Mr. Tarek Abdallah, US Army ERDC-CERL
3:30 PM	*Visible Algae-to-Oil Processing* Mr. Mike Ward, University of Texas	*Novel Geothermal Heating and Cooling Technology Capable of Rapid Deployment* Mr. Marc Portnoff, Thar Geothermal
4:00 pm	Wrap-up/Adjourn	

Mr. Tom Naguy
United States Air Force
Air Force Research Laboratory (AFRL)

Presentation

Welcoming Remarks
AFRL and APTO Transition

Biography

Mr. Tom Naguy is the Principle Program Manager and Lead for the Environmental and Energy Program as well as the Advanced Power and Technology Office (APTO) at the Air Force Research Laboratory (AFRL). Within his office, his group executes environmental programs focused on the reduction of use of hazardous materials and a reduction in the sustainment costs of weapon systems that use hazardous materials. Projects within his team include, but are not limited to, high-visibility efforts such as alternative energy technologies, laser paint removal, UV-curable coatings, chrome plating replacement technology, green house gases reduction efforts, and aircraft and runway de-icers. Mr. Naguy's expertise is in the area of materials and process engineering. In addition, Mr. Naguy is a member of the DoD Pollution Prevention R&D panel and the Strategic Environmental Research & Development Program's Technical Committees for Weapon Systems and Platforms and Energy and Water. He is also the lead Air Force technical representative to the National Defense Center for Energy and Environment (NDCEE).

Mr. Naguy earned a B.S. and an M.S. in Chemical Engineering. Professional military education includes the Air War College, National Defense University's National Security Course, Air Command & Staff College, and Squadron Officer School.

Mr. Justin Sutton
Founder and Managing Partner
Interstate Traveler Company
9594 Main
Whitmore Lake, MI 48189
Phone: 734-449-4480
Fax: 734-449-4486
Justin@InterstateTraveler.us

Presentation

Large Scale Sustainable Hydrogen Infrastructure Integration with Elevated Magnetic Levitation Rail Networks

The Interstate Traveler Company is a Michigan based infrastructure development company engaged in the research, development, fabrication, installation and maintenance of a unique solar powered plug and play infrastructure system of subsystems which integrate an elevated magnetic levitation transportation system with municipal conduit for signal cable, broadcast radio, fiber optics, electrical distribution along with a multitude of liquids, vapors and gases. This system dedicates a portion of the solar power to hydrogen production and distribution of sufficient size and scope to self sustain the system of systems and create a growing surplus of stored energy in the form of stored hydrogen as well as in other battery technologies. It employs the embedded conduit cluster and subsystems to operate and maintain a constant supply of Hydrogen, Oxygen and potable water along with all standard municipal services to all attached Traveler Stations and Utility Substations. The system is operated using a TCP/IP styled nested domain addressing electronic network operating system that will facilitate the routing and position control of multiple transports, record and control the gathering, dispensing and movement of materials, signals and energy in the conduit cluster and share real-time data to enable an expandable network of independent, interconnecting and interoperable rail networks. Further the network operating system will provide direct addressability and control of all valves, switches, meters, gauges, motors, monitors, cameras, kiosks, sensors, relays, regulators, interfaces, lights, locks, actuators, future subsystems and electronic databases. The operating system environment may allow for the real-time communication of redundant independent computers and computer programs that may host the operating system that may control all of the components used in the operation of the said system, allowing for the seamless expansion and reconfiguration the system in a "plug and play" fashion. Also, the operating system will include failover backup systems, data archiving, and the ability to compute, store and report values based on system activity, performance and integrity that may be used in ongoing performance analysis, enhancement and general accounting. Subsystems include water generation, water conditioning, solid waste processing and deconstruction using electrical plasma arc systems and hydrogen plasma systems along with high intensity spectral inundation for the destruction of biological and organic contaminates in water supplies. Finally, this system of systems is ideal for the USAF to achieve standardized methods for energy security and independence while providing resilient infrastructure for bulk hydrogen production and distribution for USAF installations worldwide.

Biography

Mr. Justin Sutton is the Founder and Managing Partner of the Interstate Traveler Company, LLC. A Patented Inventor since February 1995, he started his work on rebuilding America's public transit and energy grid system in March 1995 when he was inspired by the headlines of several news reports which asked the question: "Who will fix Amtrak?" At that time, Mr. Sutton jotted down his first twelve subcategories for the business plan which has since grown to include input from hundreds of people ultimately getting a final facelift from a group of five Executive MBA students from the University of Notre Dame. Starting with official recognition by the US Small Business Administration and several local bank executives in 2002, Mr. Sutton and his team won the endorsement of all but two of the

States Multi County Planning Organizations that led to the formal Resolutions from the Michigan House and Senate in 2003 which were both read in Congress. This was followed by official resolutions of support by the Greater Detroit Building and Construction Trades Council, the Michigan Chapter of the AFL-CIO and District 2 of the United Steel Workers of America. Working with the US Department of Commerce the first official trade delegation to China was completed in 2004 at the US Embassy in Beijing along with official communications with more than a dozen countries. In 2007 the Interstate Traveler was chosen as one of only ten US companies to be represented by the US DOC in Egypt at their national environmental conference in Cairo and in 2009 was invited by Senator Stabenow to a green energy business leader's round table at the US Capital.

Hyundai Engineers Drive Across The U.S. With No Gas

by Ross Kenneth Urken | AOL AutosPosted: Oct 11, 2011

To prove that it can be done, Hyundai recently drove a 28-day road trip across the U.S. using zero gallons of gas.

The Hyundai Tucson company reps took for the ride was fueled by hydrogen. Even without adequate fueling stations around the country, the company wanted to show that the technology is ready for prime time. The infrastructure just needs to catch up.

Mike O'Brien, Hyundai's vice president of product development, said hydrogen fuel cell technology could be on the market in the next few years.

"It's a bit of a chicken and egg situation," he said. "The question is will there be a place to fuel them?"

During the journey, the Hyundai team fueled the Tucson in such places as Austin, Texas, and at Ford Motor Company in Dearborn, Mich. They continued through to D.C. and up to New York City.

The Tucson traveled some 406 miles without refueling on 5.6 kilograms of hydrogen, roughly the equivalent of 70 mpg when using gasoline. That's some three times farther than the range of any of the battery operated vehicles that are out there today.

When unable to find a fuel station, Hyundai managed to buy commercial-grade hydrogen from commercial gas companies. That's not something the average consumer would be able to do.

Still, the road-trippers said they didn't feel anxious about running out of fuel.

Zafar Brooks, a Hyundai director who manages the project, said something else annoyed him:

"Instead what got my goat: the satellite radio was not activated," he said, noting the car was designed for the Korean market, which doesn't have satellite radio. "I listened to my entire iTunes library and I gained weight from too much junk food."

There are pros and cons to hydrogen fuel cells, and the biggest problem right now remains the lack of infrastructure.

THE PROS

Hydrogen is a clean form of energy. The only emissions coming out of a hydrogen tail pipe are water.

And there is plenty of hydrogen to go around. It is one of the most abundant resources in the U.S.

"It has a better well-to-wheel carbon footprint than hybrid and plug-in EVs," O'Brien said.

Hyundai is trying to get hydrogen from clean sources, by capturing hydrogen gas from sanitation plants.

The technology, green as it is, does not sacrifice performance: The acceleration is brisk and equivalent to an Elantra or a Corolla style car, the company says.

THE CHALLENGES THAT LIE AHEAD

By 2015, Hyundai should have a premium hydrogen powertrain option that could fit on any size vehicle. But something has to give for hydrogen fuel-cell technology to gain traction.

Engineers have to work to reduce the cost. Fuel cell vehicle price would be the price of an upgrade engine -- comparable to upgrading from a V-6 to a V-8, roughly some $6,000. Hyundai is trying to be a fuel efficiency leader in the industry. The auto-maker now has four models with a fuel economy of 40 mpg or greater.

"It's our goal to find a zero-carbon solution for personal mobility," Brooks said.

TESTIMONY OF DR. JAMES R. ANDERSON

Professor of History, Michigan State University

Michigan House of Representatives

June 15, 2009

RAILS TO THE FUTURE

Members of the House of Representatives Interstate Traveler Task Force:

I salute Representative Rogers, the members and staff of the Interstate Traveler Task Force for holding its inaugural meeting in the Lincoln Room of the Kellogg Center here at Michigan State University. It is altogether fitting and deeply symbolic because President Lincoln, our first Republican president, was one of the most committed to American rail transportation.

He never wavered or faltered in his determination to make the American railroad system the best in the world. He face a deep depression as he took office, he faced 12 per cent Treasury bond rates, and he faced a looming Civil War. His Treasury bond rate crisis disappeared within a week after he signed into law the Morrill protective tariff. The 12 per cent interest rate upon inauguration dropped by 50 per cent to about 6 per cent, enabling the Lincoln to finance the development of the transcontinental railroad system, despite the the outbreak of a four year Civil War.

Justin Sutton and the Interstate Traveler Company offer this committee, the government of Michigan, and the people of Michigan, a breathtaking and far-reaching vision of the future of ground transportation, for our state, our nation, and I believe, our world. The Interstate Traveler provides a brilliant and desperately needed answer to a long list of questions. Not the least of these questions is how we cope with the huge and destabilizing debt burden of imported oil, with deeply troubling and painful consequences for our entire existing transportation and financial system.

History, and especially American history, is made by visions and visionaries. Progress and fear of stepping forward do not sit well together. Let me, as an economic historian, sketch for you the deep roots in American economic history of the Interstate Traveler. These roots are both technological and financial.

The first operating American railroad was the Baltimore and Ohio. Its name tells us what it was designed to connect. The men and governments who built it understood well its vital connection to American independence, to American economic independence, and to the creation of the transportation and industry essential for the greatest nation of the earth.

The first stone in its foundation was laid July 4, 1828, and the first shovel of earth for the American railroad system was turned by Charles Carroll, one of the signers of the Declaration of Independence. I attach a drawing of this groundbreaking ceremony, which over time helped unite this nation in ribbons of iron and steel. Railroads would not only unite the nation, but they would also be vital to its preservation in times of terrible danger.

The first fifteen miles of the Baltimore and Ohio railroad, between the city center and Ellicott's Mills, opened for regular freight and passenger traffic on Monday, May 24, 1830, after a ceremonial run on Saturday, May 22. A leading Baltimore daily, the *Baltimore Republican and Commercial Advertiser,* expressed to its readers that morning a clear sense of the vision embedded in this wondrous iron road:

"We congratulate our fellow citizens upon this interesting occasion, so gratifying to the just pride of Baltimoreans in the successful accomplishment of the most difficult and expensive portion of the greatest enterprise yet undertaken in this country and upon the arrival of an era from which we may safely date the commencement of an increased and increasing prosperity to the city and the state."

How clearly and keenly the writer saw what the railroad would bring, and even he would no doubt have been awestruck at what followed. In less than a century, the first fifteen miles of U.S. railroad would grow to almost 250,000 miles, and the United States would become the most prosperous and powerful industrial nation of the earth. We have paused for some ninety years now in the growth of the American rail system, and the Interstate Traveler presents an opportunity to resume the dynamic growth that did so much for American prosperity.

One of the greatest of all Americans and of all human beings, Abraham Lincoln, was quick to understand the importance of railroads. In his first public letter, on March 9, 1832, less than two years after the Baltimore and Ohio opened, Illinois General Assembly candidate Lincoln told the people of Sangamon County, "Time and experience have verified the public utility of internal improvements....No other improvement that reason will justify us in hoping for can equal in utility the railroad." How clearly and keenly Lincoln saw the future of railroads. In his Presidency, despite the bloody toll of the Civil War, whose toll for Michigan men and families is enshrined on the walls of our Capitol Rotunda, he would promote and sign into law the legislation that connected the Atlantic and Pacific, the East Coast and California, by railroad.

Visions can founder without finance. How were early American railroads financed? The answer is simple, the details more complicated. They were financed by public-private partnerships. Public-private partnerships have existed under a variety of labels from the time of the Pilgrims. Few history texts tell of the public-

private partnership, by which the Massachusetts Bay Colony provided public capital and subsidies to investors led by a Winthrop family engineer and entrepreneur to create the most advanced iron making facility in the world, the Saugus Iron Works, by 1645 —130 years before the Declaration of Independence. Our founding fathers well knew that the dream of a City on a Hill would require domestic iron and steel. The American iron and steel industry, the world's largest until the recent age of free trade shriveled it, grew from this partnership.

The foresight of the inventors of rails, railcars, and locomotives was matched by the foresight of both private investors and governments. The Baltimore and Ohio Railroad was a public-private partnership, and so were most of our railroads up to and well beyond the Civil War. The route planning and design was funded by the Federal government under the General Survey Act of 1824. The Baltimore community leaders founded the railroad under charter from the State of Maryland. They sold $3 million (1827 gold backed dollars; equivalent today would be $150 million) to private investors; the city of Baltimore bought $1.5 million. The State of Maryland later granted—repeat, granted--$500,000. The day the B and O opened, the U.S. Congress was nearing final passage of a $375,000 direct B and O stock purchase, beyond the planning funds previously committed.

From my standpoint, the public-private partnership the Interstate Traveler Company proposes has two strong points. First, it asks only for right-of way. It asks no funds from our state government, now chronically short of revenue. Private and corporate investors will finance the rails and rolling stock. Second, if built as designed, it offers a solid prospect of a steady stream of revenue, generated from both energy savings and energy production, to not only the state government, but cities and counties as well. This is an invaluable strong point in the revenue constrained setting most governmental entities must now operate in.

We are in sight of the greatest advance in American ground transportation since a young United States, along with the people of Baltimore and Maryland, built the B and O railroad. I have very little doubt that the Interstate Traveler is going to be built. Whether it will be built in Michigan, or the Midwest, or even the United States is open to some question.

There is not the slightest doubt that Michigan has a historic opportunity to build this system, if we simply muster the modest courage and resources needed. The essential question before the Legislature and the Executive Branch is a simple one. Is Michigan going to lead or lag? Will history look at us as leaders or laggards in this new phase of American transportation?

Let's keep our eyes on the prize. Seize the moment.

Thank you.